The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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CLAUSTHAL MINING SCHOOL NOTES.* —No. C.

BY J. CLARK JEFFERSON, A.R.S.M., WH. SC.,
Mining Engineer, Wakefield.
(Formerly Student at the Royal Bergakademie, Clausthal).
[The Author reserves the right of reproduction.]

SECTION V.

The use of arches to support the walled sides of rectangular shafts is not uncommon, though they are considered disadvantageous, as preventing a regular sinking or setting of the walling. Lottner gives many examples. At the Johanna shaft, Elisabeth Calamine Mine, near Bobrek, Upper Silesia, the walling is supported at 55 yards deep by four independent arches footed in limestone; they were 10 ft. span, 3 ft. thick, 3 ft. deep, and sprung 29 in. The shaft is square, 9 ft. from corner to corner, sides curved to 20 ft. radius, and wall two bricks thick; arches set in Portland, and shaft wall in Roman cement. In the Nothberger (square) shaft, near Eschweiler, bearing arches 19 ft. span, 38 in. thick, 52 in. deep, and 38 in. spring are inserted at 53 yards deep on shorter sides. On these the bearing arches for the longer sides are built 13 ft. span, 38 in. thick, 48 in. deep, and 16 in. spring. The size of shaft is 13 ft. by 10 ft. 8 in., and the walls 38 in. thick, and 2 ft. wider apart in centre than at corners. At the Erfurt Rock-Salt Mine the bearing arches had 21 ft. span, 40 in. vertical rise, 14 ft. 6 in. side span (to correspond with longer rectangular side of shaft), and horizontal spring 19 in. Above these the bearing arches, two bricks thick, for the other two sides are inserted, same horizontal and vertical spans, and built independently of lower arches, which are built up to be level with upper arches. The transition into the circular form is effected by side arches 6 ft. span and 18 in. vertical rise, horizontal spring made, to correspond with circular form, 18 ft. 6 in. diameter, of remainder of shaft.

The thickness of the walling for a circular or polygonal shaft is generally taken arbitrarily from existing examples, but may be easily calculated when the initial pressure on the outside of shaft is known. The mode adopted for calculating the thickness is exactly analogous to that for finding the thickness of the inside flues of boilers to prevent collapse; and in the result the thickness of the wall in inches will be equal to the product of $r\,p$ (that is, the radius of the shaft in inches × ·433 × head of water in feet), divided by the resistance of the material to crushing. The constant ·433 is obtained by assuming the pressure per square inch on the exterior of shaft lining is due to the head of water behind it, whence p, the pressure in pounds, is (h, the head of water in feet ÷ 144) × 62·4 = ·433h. The derivation of the formula is discussed in Rankine's Applied Mechanics, par. 273; and in Weisbach's Mechanics, Vol. ii., par. 409.

[Even in the case of great depths, and consequently great pressure, the rule given will suffice for all practical purposes. The resistance to crushing in lbs. per square inch of brick has been variously given. According to Rankine, it is—for weak red brick, between 550 lbs. and 800 lbs.; for strong red brick, 1100 lbs.; and for fire-brick, 1700 lbs. According to Weisbach the resistance of walling materials to crushing varies between 550 lbs. and 2000 lbs. According to Rouleaux, 880 lbs.; for brickwork, with ordinary mortar, 547 lbs. According to Trasenster, in the Revue Universelle des Mines, 850 lbs. to 1000 lbs. For sandstone the resistance varies, according to Rankine, from 2200 lbs. to 5500 lbs. Weisbach gives 4000 lbs., and Rouleaux 9580 lbs. for sandstone, but only 2050 lbs. for sandstone walling. The following are practical resistances for wood, in the case of solid wooden cribbing, being half those given by Rankine for dry timber:—Oak, 3000 lbs. to 5000 lbs.; pine, 2200 lbs. to 3100 lbs.; and beech and ash, 4500 lbs.

The general factor of safety required when using the above rule is, according to Lottner, 10, though 3 is often considered sufficient in practice. If we assume as a working resistance 800 lbs. per square inch the following table gives the thickness of the lining for a shaft 13 ft. 4 in. in internal diameter at the following depths, supposing it to be subjected to a head of water due to those depths. The first numbers are for the case when the thickness of the lining is not taken into account, and the latter when it is:—

Depth.	Thickness in inches.	Thickness in bricks.	Thickness in inches.	Thickness in bricks.
30 yards...	3·9	1	4·0	1
50 yards...	6·5	1	6·7	1
70 yards...	9·1	1	9·6	1½
90 yards...	11·7	1½	13	1½
100 yards...	13	1½	14·1	2
120 yards...	15·6	2	17·2	2

Jicinsky gives the following as the minimum thickness of the lining, without giving the diameter, for the following depths:—

30 metres	4·14 inches	1	brick
50	„	4·14	„	1	„
70	„	7·88	„	1	„
90	„	8·08	„	1	„
100	„	11·82	„	1½	„
120	„	13·80	„	2	„

On the Continent, especially in Westphalia, as we have above remarked, a rectangular form of shaft, even in the case of water-tight lining, was very common. The requisite thickness of the lining (which was composed of four curved walls) is much greater than is required for circular shafts. The following figures given by Lottner, from an article by Huyssen in Karsten's Archives, show the thickness adopted for shafts 12 to 14 ft. long, and where the horizontal rise of the curve of the arch is from 1-12th to 1-8th of the span.

For 15 fathoms depth	2	bricks in thickness.
For 35 „ „	2½	„ „
For 45 „ „	3	„ „
For 55 „ „	3½	„ „
For 60 „ „	4	„ „

The thickness of rectangular shafts and of circular shafts, according to the above, gives that of the former double that of the latter, but since the periphery of a rectangular shaft is to that of a circular shaft as 4 to 3, the relative amount of brickwork required is as 8 to 3; or taking into account the extra thickness of the brickwork at the corners of a rectangular shaft, it may be approximately stated that the amount of brickwork in a rectangular shaft is three times that required in a circular shaft of corresponding size.

On the Continent a rectangular shaft is allowed to serve both as a downcast and upcast shaft; but, even supposing two circular shafts are required to serve the purpose of a single rectangular shaft, the amount of brickwork is still less, since on account of the smaller diameter of the shaft a narrower lining will suffice. Practically a saving of 50 per cent. in material would be effected.

After the foot of the walling has been built in the recess or on the ledge cut for it in the water-bearing strata the space between the sides of the rock and the outside of the lining is filled with cement. When the wall has thus been carried up to the level of the water-bearing ground, some provision must be made to carry off the water, so as to prevent it running down the wall and washing away the unhardened cement; this is effected by building into the walling a cast-iron knee pipe, the short portion of which projects with flanges into the shaft. The vertical portion of the pipe is often placed in a recess cut for it in the rock, and the space all round between the walling and sides of the rock is filled with well puddled and stamped clay. This backing of clay, from 8 to 12 in. thick, is usually carried from 1½ to 3 ft. upwards in advance of the wall, and is so shaped on its upper surface as to conduct the water direct to the above-mentioned iron pipe. The building of the wall and the advancing of the clay backing, each from 1½ to 3 ft. at a time, proceeds alternately, the pipe being lengthened as becomes necessary. When the backing of the lining is entirely of cement, then a special temporary ring dam formed with boards and clay must be laid some distance above the top of the walling, and must be regularly removed higher as the walling proceeds; in this manner the walling is carried up till the top of the wall is from 1 to 2 yards above where water-tight ground commences.

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergrath Dr. Von Groddeck, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

INVESTMENTS IN FOREIGN MINING.

The constant desire evinced by the *Mining Journal* to encourage legitimate mining wherever English capital is employed, and to expose shortcomings either in skill or judgment which might jeopardise the interests of shareholders, has been taken advantage of most unfairly by a correspondent whose communication was inserted in last week's Journal. The letter of "Veritas," coming from one who had occupied a prominent position, and purporting to refer to abuses which required removal, was unhesitatingly inserted especially, although it contained neither the name of the company nor of the officers alluded to, it being naturally assumed that it was written in good faith, and with the very proper feeling of avoiding unnecessary annoyance to those whose conduct was reflected upon. Unfortunately this was not the case. "Veritas" having replied to an advertisement in the *Mining Journal* for a competent smelter, capable of undertaking the erection of works, was, after examination of his testimonials, engaged at a good salary, and sent out to Canada in due course. He, as he truly states in his letter to the managing director, dated Nov. 29 of the present year, "built those smelting works as substantially and economically as if he had been building them for himself," but unfortunately he had the vice not uncommon among the best workmen, and still more unfortunately the official publication of convictions and punishments shows that he had to suffer two periods of imprisonment for drunkenness, and one of 45 days for assault. This explains the reason of unfounded and annoying charges being made.

Had "Veritas" been contented with losing a lucrative appointment and returning to his old home in Cheshire, the executive of the old company would only have had to regret making an injudicious selection, and "Veritas" would have had an opportunity of retrieving his lost character. Instead of this, he has attempted to injure both the company and those connected with it to satisfy his spleen. It will suffice, however, to give one or two extracts from his letters to officers of the company. On Nov. 29 he writes to the managing director—"It has given me such a horror of drink that I hope never to taste intoxicating liquors again. I, therefore, hope you will look over my indiscretions, and assist me to be reinstated in my situation, and I know you will never regret it, as I will ever strive by steadiness and constant application to the business to make it a source of profit to the company. Kindly answer this, and say you will get me reinstated, and on what terms, as I am willing to make almost any arrangement to retrieve my character." After reading this letter it is difficult to believe that the same writer—"Veritas"—should only four days afterwards, on Dec. 3, write to the captain of the mine—"If you can persuade Mr.—— (the managing director) to reinstate me in my old place I will pay all accounts, &c.; but" threatening that unless he were so reinstated he would make certain scurrilous charges against the managing director in the columns of the *Mining Journal*. It need scarcely be said that, although the managing director duly received this communication from the captain, he has shown no desire to come to terms with "Veritas," who has followed up his indiscretion by abusing our confidence by forwarding us such a communication for publication. The most charitable conclusion to be drawn is that he was not in a fit condition to criticise the conduct of others when he wrote the letter, and for that reason alone his name is still withheld.

MINING AND QUARRYING PATENTS.

If the anticipations of inventors were always realised disappointment in mining would be a thing unknown, as not only would the most refractory minerals be readily turned to profit, but mining need never be embarked in until the exact position of the lodes has been accurately ascertained. The volume of Abridgments of Specifications relating to Mining, Quarrying, Tunnelling, and Well-sinking, issued by H.M. Commissioners of Patents, as well as recording inventions of the utmost importance to mining industries, furnishes the details of some so extraordinary that they are worth reading for the curiosity of them. There are some people, for example, who would willingly invest their money in mining, but have not confidence in the truthfulness of the reports of mine agents, nor have they courage to go underground to see for themselves. There are two inventors who appear to have been particularly anxious to meet the requirements of capitalists of this class, for they propose that the explorer shall be informed by telegram of the existence of the hidden treasure. In November, 1852, one Stanislaus Hoga proposed a method of ascertaining the existence of gold in the earth. He takes a rod of "some conductor of electricity, and wherever gold is supposed to exist in the earth he inserts this rod, and the presence of that metal will be immediately indicated by the completion of the electric circuit." It is somewhat curious that almost exactly 10 years afterwards, in November, 1852, this idea was nearly exactly repeated—one Edmond Langlois proposing to indicate the presence of minerals, by causing the mineral or other substance to complete an electric circuit, and so to afford indications, for instance, by ringing a bell. The apparatus, he says, may be in the form of a staff, made up of two concentric tubes, attached to the poles of a battery.

A decidedly novel, if not very aggreeable, method of blasting was proposed by A. J. Forsyth, in April, 1807, and the absurdity was repeated by John Norton, in October, 1852. The description of the latter will explain the principle of both. Each cartridge is charged with "fulminating mercury or other highly explosive compound," closed at each end, and fitted with a percussion cap, a cylindrical pin being placed between the two caps, to serve as an anvil. The cartridge is placed in the hole or drift, and a bar of metal or wood lowered carefully on to it. No tamping is permissible. But now comes the brilliancy of the invention. The explosion of the charge is effected by striking the protruding end of the bar with a mallet. Miners are not usually wanting in courage; but to charge a hole with (say) only 1 lb. of blasting powder, and explode it with an iron tamping-bar and mallet brought to bear upon a couple of percussion caps would be a rather severe test of pluck, and much like standing in front of the muzzle of a cannon to fire it. If, however, the patentees showed the utility of the invention with their own hands there would be little to dread of their subsequent claims for royalty. Sir William Congreve, October, 1823, was far more practical. He proposes the use of bon-bon crackers for firing the charge; but, apparently disinclined to keep quite so close to his work as Messrs. Forsyth and Norton, he proposed to fix the cracker in the hole, tie a string to one end of it, and retire to a safe distance to pull. Baron de Liebhaber, in March, 1845, proposed to render the blast more effective. He suggested the enlargement of the bottom of the hole, by pouring in through a tube dilute hydrochloric acid to dissolve the rock. The hole was also lined with marine glue. The convenience of glass tubes, marine glue, and hydrochloric acid either in descending by ladder or man-engine will be duly appreciated by miners. But why should miners be exposed to the danger of explosives at all while the invention of Messrs. Murtineddu and Co., October, 1856, is within their reach? The invention consists in splitting or rending rock by the introduction into cavities made therein of a composition of sulphur, saltpetre, sea salt, sawdust, and dung which on being ignited rapidly developes considerable heat, and so splits or rends the rock as to allow of the ready removal of the broken or separated parts. Treacle or other like matter is added to the composition to give cohesion. This composition, it is explained, does not cause explosion upwards, as with gunpowder.

Boring machinery—that is to say, machinery for making a single hole to a considerable depth—appears to have been the subject of patents for the last 150 years; but nothing approaching a rock drill, in the modern acceptation of the term, is met with until February, 1853, when William Pidding proposed the use of a rammer fitted into a frame, along which it may slide horizontally or on an incline or railway. The power was to be supplied by steam or by the explosion of gunpowder placed in a common cannon, into the mouth of which the end of the rammer fits. The rammer is brought back for the next stroke by springs. The invention claimed June, 1853, for a correspondent is still nearer the modern rock drill; but the blow was given by a spring of metal or caoutchouc, and the drill was drawn back either by the power of a small steam-engine or any other suitable motive agent. He points out the necessity of rotating the drill, and of providing for the feed. In January, 1855, Mr. Fontainemoreau applied for a patent for an "improved machine for drilling and boring rock, for tunnelling, and rock excavation generally," which, to judge from the abridgment, was at the time altogether novel, and by far the most important in the volume, yet curiously enough it is marked "provisional protection not allowed." Assuming the abridgment to represent the invention the law officers must have failed entirely to comprehend the invention, and thus deprived an inventor of his just rights; a more striking piece of evidence as to the undesirability of leaving the grant of a patent to the caprice of lawyers and their still more ignorant clerks could not be found; for the abridgment states that "the inventor proposes by this machine to supersede the ordinary mode of drilling rock by manual labour, and to materially diminish the cost and increase the speed at which drilling in rock may be accomplished. The invention consists—firstly, in the use of compressed air in the cylinder, for giving an effective blow to the drill; secondly, in the arrangement of the escape valves and inlet apertures; and, thirdly, in the arrangement of machinery for giving the forward and rotary motions to the drill." In August of the same year Thomas Bartlett patented a somewhat similar invention; but his specification appears to have satisfied the law officers, because the language used would have convinced any engineer that the machine would be useless. Sommeiller's invention was patented in January, 1859, and from that time the applications have been very numerous.

The volume also contains notices of some 50 inventions for safety-cages; of a still larger number for coal and stone cutting, and wedging machinery; and of many for fuses, explosive compounds, cartridges, winding and drawing arrangements, ventilation, and various other matters of great importance to all connected with mines. Many of the inventions are unquestionably ludicrous, yet many will afford useful practical suggestions, even if they cannot be applied without modification—so that the volume cannot be read without profit.

STOCK EXCHANGE YEAR BOOK.—The fifth annual edition (that for 1879) of Mr. Thomas Skinner's Stock Exchange Year Book (London: Cassell, Petter, and Galpin) has just been issued, corrected to the present date. It embraces all necessary details concerning Government stocks—home, colonial, and foreign, including municipal; railways—home, colonial, and foreign; banks; insurance; gas and water; mines, including collieries; tramways; telegraphs; shipping; dock and canal; and miscellaneous companies. Mr. Skinner remarks the year now closing will be for some time prominent as including the failure of the City of Glasgow Bank under circumstances peculiarly calculated to arouse and impress the mind, and he points out several cases in which he has had to mark the delinquent companies "no further information can be obtained," "no report issued," and so on, as, for example, the Albion Insurance Company and the Chesterfield and North Derbyshire Banking Company, remarking the failure of the City of Glasgow Bank, and subsequently of the Colonial Trust Corporation, within a few weeks of the publication of full reports, and the declaration in each case of the usual 12 per cent. dividends, threw the smaller previous events out of sight. As to prevention of a recurrence of these disasters Mr. Skinner suggests that companies might with advantage be obliged to fill up an annual form just as the railway, life assurance, and some other classes of company are, the signatories to be the directors and chief officials, each and all of whom should be responsible to the Government for the accuracy of the returns made. This might be of some utility, but probably of very little, unless the return be as full and complete as indicated by the balance-sheet in the schedule to the Companies Act, 1862. The directors and chief officers should be made punishable by imprisonment without option of fine for neglect to file true return within three months of end of year, at which time (in the event of the shareholders having taken no steps to compel filing) the shareholders' claim to limited liability should cease, but upon any shareholder applying to a magistrate such magistrate should be required to issue order compelling the company's or the shareholders' solicitor to take necessary proceedings against directors at the cost of the company. At present the majority of public companies' accounts afford no reliable evidence as to solvency, such items of assets, for example, being admitted as are shown in more than one bank return—"Due to the bank on bills discounted and purchased (including those past due)"—which item is shown as representing more than one-half of the total assets (say, 2,500,000*l.* out of 5,000,000*l.*), yet the past due bills may amount to 2,000,000*l.*, and be worthless. Much may be learned from the Year Book, which should be in every office.

CASSELL'S PUBLICATIONS.—The eleventh part of Great Industries of Great Britain contains No. 11 of Shipbuilding; No. 5 of Eminent Manufacturers—Samuel Cunliffe Lister; No. 10 of Cotton; No. 11 of Iron and Steel; No. 1 of Industrial Art, by J. F. Robertson, author of the Great Painters of Christendom; No. 10 of Hemp, Flax, and Jute; and No. 10 of Wool and Worsted; all of which maintain their former character. The reprint of Knight's Practical Dictionary of Mechanics has now reached Part 24, which extends from Drag-anchor to Dynamometrical Brake. The character of the dictionary is already well known; its issue in monthly part will place it within the reach of many to whom it would otherwise have been inaccessible. In its complete form it consists of about 2000 pages of information, and over 5000 engravings, so that it forms a very handsome work for the working man's library. The December part—the thirteenth—of Science for All is unusually interesting. The first article on the Northern Lights, by G. W. von Tunzelmann, is well illustrated, and accompanied by an excellent chromo-lithograph of an arctic aurora. The Mathematics of Plants, by Dr. George Dickie, of Aberdeen, is alike curious and instructive. There are also articles by Dr. Mann on How the Wind Changes; by R. Wilson on Dreams; and by W. A. Lloyd on Why the Sea is Salt. The Christmas number of the Quiver—the Arrows from the Bow—contains ten well written papers of a religious turn, which will no doubt be extensively read.

SHOLL'S SINGLE-HEAD STAMPER AT BOTALLACK.—We are pleased to notice that this stamper has again proved itself capable of doing good work, and that it only wants a bit of the old mining spirit to bring it well to the front as an accessory to, if not entirely to supersede, the old stamps, good old servant as it has been. At a recent trial under the inspection of Mr. Darlington (of rock-drill celebrity), acting for Mr. Park Pittar, of the Chontales Mine, the quantity of stuff stamped was at the rate of 22½ cwts. per hour, through 36 Cornish grates, or ½ millemetre diameter; or stamping by the measured barrow at the rate of one barrow (2½ cwts.) every six minutes. After having accomplished this task continuously for some time (time kept by Mr. Darlington and Capt. Roach, late manager of some gold mines in South America), Mr. Darlington had one of the barrows that was filled ready for turning over conveyed to the scale and weighed, and he expressed himself satisfied that the work done was as before mentioned—2½ cwts. per hour; making every possible allowance for stoppage and wear and tear, the machine might safely be put before the county as capable of stamping comfortably 1 ton per hour continuously. Considering that the nature of the stuff stamped was hard and tough; and looking at the ease with which the machine appears to have done the work, this may be regarded as a minimum average.—Capt. James Roach, of St. Just, speaking of the work done by the stamper, says: "At the time I inspected the Sholl stamper at Botallack I estimated it to be stamping at the rate of 22½ cwts. per hour per head of tough, though not hard, tinstuff, through a fine mesh. I calculate with quartz of a rather friable nature, such as I have had to deal with both in Cornwall and South America, there would be no difficulty in putting 35 to 40 cwts. through a 1-16th inch mesh per hour

when the stuff is served as it ordinarly comes from the mine, with the stones broken to pass through a 2½-in. ring mixed with the smalls."—*Cornish Telegraph*, Dec 17.

FOREIGN MINING AND METALLURGY.

Contracts have just been let for no less than 109 small bridges for Java. The contracts were let in two lots, the first lot comprising 61 bridges, and the second 48. For the first lot the highest tender was 24,400*l.*, and the lowest 14,290*l.* For the second lot the highest tender was 10,900*l.*, and the lowest 6129*l.* The lowest tenders were delivered by the Sclessin Works, and the highest by Messrs. Cail and Co., of Paris. A new truck-building company at Morlanwelz has obtained an order for 100 trucks. The works of M. Paris-Isaac, of Marchienne-au-Pont, have been charged with the construction of a new Palace for the Fine Arts at Amsterdam. The new building will involve the use of a considerable quantity of iron—say, 400 tons. At a recent adjudication for 165 coal trucks of 10 tons each for the Belgian State Railways the lowest tender was delivered by Messrs. Delforge and Co. The Governor of the Province of the Hainaut, after having visited the Charleroi basin, is about to make a tour in the basin of the Centre.

There has been no great amount of business passing in the French department of the Haute-Marne, but it is thought that there are some symptoms of a revival, if we may judge from the proposals made to forgemasters. Iron rails have ranged between 6*l.* 4s. and 6*l.* 8s. per ton. Any further fall in prices appear to be considered impossible at Paris, having regard to the well-nigh unprecedented level to which quotations have descended. The mixed iron of the Champagne group is selling at 8*l.* 8s. per ton on the spot, and that from charcoal-made at 9*l.* 12s. to 10*l.* per ton. In the Meurthe-et-Moselle group pig remains at very low prices; the quotation at Nancy is 2*l.* 4s. to 2*l.* 5s. per ton, and at Longwy 2*l.* 2s. 6d. to 2*l.* 3s. 3d. per ton. In the Nord the situation remains difficult, and current quotations have nothing consoling about them. In the Loire and the Rhône district there is also a good deal of depression. Some contracts are about to be let at La Haye for rolling stock required for lines in the Dutch Indies.

The coalowners of the Charleroi district refuse to make any concession in prices, which are, upon the whole, maintained with firmness. Trucks on the railways, and boats on the navigations, are in considerable request. The administration of the Belgian State railways has just given out an order for some additional trucks, but, of course, they will not be available for some time. The nominal profit realised by the Ougree Collieries and Blast Furnaces Company for 1877-78 was 16,815*l.*; this was 1512*l.* more than the corresponding profit for 1876-77, but the profits of both years have been applied in the reduction of the depreciation of premises and plant. The attention of Belgian industrials has been directed to a large subvention offered by the Japanese Government for the working of a coal basin in the Island of Yeso. It is stated this basin would yield every year for 1000 years as much coal as is now produced annually in Great Britain.

The past week has been almost destitute of interest as regards the French coal trade. There has been no change in prices in the Nord and the Pas-de-Calais. There is a well-sustained demand for coal for domestic purposes, especially for Paris.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week the tendency of prices has again been downward. Business is now very dull, but in the beginning of the week there was more doing. Owing to the tightness of the money market and unfavourable financial rumours, sellers have preponderated, and shares are in many cases to be had at prices that cannot fail to prove very remunerative to *bona fide* investors. The prolonged depression in every department of trade is becoming very distressing; but beyond the prevailing gloom better prospects may hopefully be anticipated. The continued removal of rotten firms, the tendency of the demand for British exports to increase under the stimulus of our lower cost of production, and the pacific aspect of foreign politics are all favourable influences that will, so soon as confidence is regained, at once make trade more profitable and brisker.

In shares of coal and iron concerns, Bolckow, Vaughan (A), are reduced 2*l.* per share, Benhar 8s.; Chillington and Glasgow Port Washington (prepaid), each 5s.; while Glasgow Port Washington (ordinary) are 5s. higher. The principal dealings have been in Benhars, which have fluctuated between 1*l.* and 11s. 3d., and are at present very little above the lowest price touched. A call of 2*l.* per share is due on Tredegar (A) shares on Jan. 1; as there are 20,000 of these shares, the amount thus raised should be 40,000*l.* The Scottish Australian sales for October have been 17,110 tons. Andrew Knowles and Sons are at 10 dis. Bolckow, Vaughan (A), 46 to 48; ditto (B), 28; and ditto (pref.), 5 per cent., 19¼. Cardiff and Swansea, 22s. 6d. Chapel House (shares), 40s. to 60s.; ditto 7½ per cent. debentures, 7 to 8. Chillington Iron, 40s. to 60s. Charles Cammell and Co., 16 dis. Ebbw Vale, 17s. 6d. Great Western, 35s.; ditto (pref.), 70s.; ditto (debenture), 57½. John Brown and Co., 24 dis. Nant-y-Glo and Blaina (pref.), 18 to 20. Newport Abercarn, 75s. Parkgate, 21½ dis. ex div. Rhymney, 12. Sheepbridge, 40 dis. South Wales, 40. West Cumberland, 7. Workington Malleable, 12¼.

In shares of foreign copper concerns Tharsis are reduced 10s. on the old shares and 5s. on the new shares. These shares improved to 21⅛, but have since declined to 20¾. The Cape Company has declared a dividend of 17s. 6d. per share; the returns for October of this company have been 1045 tons of 24 to 38 per cent. The Rio Tinto Company announce that the funds required to meet their 7 per cent. drawn bonds and their 5 and 7 per cent. coupons, all due on Jan. 1, have been deposited at the bankers. The last monthly advices show the various lodes at the Yorke Peninsula mines are opening up very satisfactorily, and no doubt, as soon as a better price is obtainable for copper, much larger returns will be made. The ore shipments amount to 155 tons, and on hand to 131 tons of 17 per cent. New Quebrada are at 30s. Rio Tinto, 5 per cent., 58. Yorke Peninsula done at 2s. 6d.

Shares of home mines are very dull. Hingston Down and South Caradon are now both at low prices, and are good to buy for a certain advance. Gunnislake (Clitters) have been done as low as 5s., although it is said, but not confirmed, that some improvement has taken place in the sinking of the shaft. Bodidris shares are being unsuccessfully offered at 12s. 6d., although it is said that thousands of circulars are being sent out recommending them to be purchased at twice that price. Bampfylde are at 5s. East Van, 37s. 6d. to 42s. 6d. Great Laxey, 18 to 19. Great Wheal Eleanor, 7s. 6d. Llanrwst, 21s. Mwyndy, 25s.

In shares of gold and silver mines there is very little movement. Richmonds at one time were 11½, buyers, but are now 11, sellers, or the same as at the beginning of the week. Advices have arrived that two furnaces are started, and the refinery to be started to-day. The half-yearly report of St. John del Rey shows the amount paid as dividend, and 10 per cent. added to reserve is 4370*l.* more than the profits—37,375*l.*; therefore the balance is reduced to 657*l.* The steady development of the lode in the western section is encouraging, and great efforts are being made to bring the machinery into a most efficient state. Altogether the prospects are good. The report of the Chicago Silver is very unsatisfactory, and shares flat. Australasian mines also offered. Exchequer and I. X. L. shares are rather firmer, on the expected commencement of the Isabella tunnel. The advices from the various mines this week are more numerous than usual. The New Zealand Kapanga returns of gold are 85 ozs., and the clean-up at London and California is estimated at $6000. The produce of St. John del Rey for November is 32,500 oits. (yield 6 oits. per ton), and that of Don Pedro 265 oits. Javali has a profit of 255*l.* in October, Chontales 452*l.*, and Santa Barbara 823*l.* (estimated). The profit at Sierra Buttes in November is $12,275, and at Plumas Eureka $19,142. The profit at Port Phillip for the month ended Dec. 4 is 1238*l.*, against 1304*l.* for the month ended Oct. 9. Birdseye Creek are 14s. 6d. Colorado, 40s. Eberhardt, 67s. 6d. Emma, 2s. Flagstaff, 4s. 6d. to 5s. 6d. Gold Run, 3s. to 6s. Last Chance, 12s. 6d. Santa Barbara, 29s. to 34s., ex div. South Aurora, 2s. 6d. to 5s. United Mexican, 60s.

In shares of oil companies, Dalmeny have fallen 15s., Young's Paraffin 2s. 6d. and Uphall 1s. Young's Paraffin have been steady all the week from 13 to 12½, and stand now just about the medium price. Price's Patent Candle, 10½. Runcorn Soap and Alkali, 10 dis.

Shares of miscellaneous companies are neglected. Hamer's Salt offered. Earle's Shipbuilding are at 21½ dis. Hopkins, Gilkes, and Co., 11¼ dis. Native Guano, Bristol and South Wales, 7½. Gloucester, 7¼. Sheffield (second issue), 2s. 6d. prem. Swansea, 22s. 6d. In chemical companies, prices are—Langdale's 80s. to 90s. Lawe's, 8¾ to 9¼. Newcastle, 38s. 9d.

BENHAR COAL COMPANY (Limited).—Since writing the remarks given below on this company the report of the accountants has been published, and confirms substantially what is there stated. The accountants state that until the report of the experts is obtained no estimate of the outlay necessary for the works can be given, but they believe, apart from this, that a sum of not less than 200,000*l.* must be raised or arranged for for the general requirements of the company. They state that in 1875, 1876, and 1877 various sums, amounting in all to over 30,000*l.*, were improperly treated as profits. Another scheme is announced for carrying on the Benhar pits by forming a new company with a capital of 50,000 shares of 5*l.* each. Not more than 1*l.* per share would it is calculated be required to be called up, and yet the creditors would all be secured. The adjourned meeting of shareholders is to be held on December 27.

NEW COMPANIES.—A company is being formed to acquire and work a very valuable manganese mine, with wheels, crushing, and other plant, &c. This is no speculation, as there is already 1000*l* worth of manganese discovered of first-class quality, and there can be no doubt but that it will turn out very well. In the same neighbourhood is a copper mine, as also a lead mine, at present being privately worked, and now about to be put into a public company for more extensive development, and every confidence may be felt in the *bona fide* nature of these investments. Among the other ventures waiting to be launched is a good slate quarry. Also an iron lode, 8 ft. wide, and close to the railway. Fuller particulars of both these properties will be ready soon. At the same time one cannot fail to notice that first one thing, then another, and now seemingly everything has gone against mining enterprise, and probably it was never in so bad a state as at present. Setts are now going a begging for purchasers, which only a short time since there would have been no trouble in selling at great prices. The fall in the prices of mining companies shares is undoubtedly the cause of this, for the public have thereby lost confidence, and capitalists who would buy the properties in ordinary times, and then sell them in shares to the public, now find the latter will not buy at all. Hence the properties for sale cannot be disposed of, because as long as metals keep low there is little profit coming out of mining operations, and the parties who might be buyers perhaps find they must reserve capital or profits to keep other mines going without buying more.

COMBMARTIN MINE.—The caunter lode in this mine is improving, and the level approaching where a rich deposit of lead was opened on near the surface. Any day a good discovery may be mad in this level. The cross-cut north is also an important drivage, as other lodes wrought on further west in the old mine will soon be intersected, and open up a valuable mine. Shares are said to be worth buying at present prices—5s.

CAIRNTABLE GAS COAL COMPANY (Limited).—The directors' report to the sixth general meeting of this company, to be held on Dec. 20, states the accounts show a balance of 3950*l.* available for division, and this sum has been earned during the year, after maintaining the works in proper repair, and writing off 1611*l.* for depreciation. The dividend proposed is 7½ per cent. to holders of new shares, and 10 per cent. to the original shareholders other than the vendors. After these payments a balance of 425*l.* is left, which falls to be paid to the vendors to recoup the amount they had paid in dividends under the guarantee. The guarantee is now at an end, and it is satisfactory that in the present depression the company has been able to earn more than sufficient to cover the divrdend. The sales for the year have been 502 tons of Boghead cannel, 10,800 tons gas coal, 39,831 tons of common coal, 3050 tons dross, and 3035 tons lime shells. As compared with the previous year there is a great increase in the quantity of gas coal, and a more than corresponding balance to credit of that account. Common coal also shows an increase in the quantity, but the fall in price has made it less remunerative. The lime work shows a falling off, owing to the dulness in the building trade. The Boghead cannel is a new feature in the balance-sheet, and has contributed a fair share to the year's profits. As working capital is required, and the company's banking facilities are exhausted, and a month or two will elapse before the stock of gas coal on hand, which is all sold, is converted into money, it will be necessary to postpone the payments of the dividends to the end of March. The pits are now fully developed, and yield a large output, as increased production decreases the cost of working, and the output has been steadily on the increase for the last six months, the prospects for the current year are very favourable. The capital expenditure is terminated, and the outlay vigorously written off by fixed rates per ton on the respective descriptions of coal raised.

CWM BRWYNO LEAD MINING COMPANY (Limited).—The issue of the prospectus of this company has been unavoidably delayed, but the board of directors has at last been completed, and the papers issued. The property was fully referred to in a letter in last week's Supplement, and is more and more richly developing. Investors, no doubt, will be pleased with the prospects of the mine, as well as the respectable parties connected with it. The plan of the mine, which accompanies the prospectus, supplies a very accurate explanation of the workings. The shares are now selling at par, and it is certain that in a week or two they will be in great demand.

LOCHORE AND CAPLEDRAE COAL COMPANY.—At the extraordinary meeting of this company, on Monday, the resolution adopted on Nov. 29, for increasing the capital by 5000*l.*, in 10 per cent. preference shares of 5*l.*, was confirmed. The chairman explained that ten days would be given to present shareholders to take up the new stock, and after that, if any remained, it would be open to the general public. He said that, taken altogether, their position since last meeting was a shade better, and it only required that they should get the little money necessary to take them over the present pressure to a successful issue. At the old mine the output was being kept up. Owing to the dull times, they had reduced the number of men there, so a reduction in cost would be effected. The communication between the old and new mines was now through the whinstone, and in a fortnight the ventilation of the old mine would be perfectly established. They would then be able to work a larger area of coal, and to prove a large quantity of coal adjoining the old mine workings. The opening of, the new mine towards the new field was now into the field harvest, and they were hopeful that as they got up to the rise the difficulties they had to contend with would disappear. At another point where they were opening up the coal it was keeping good and regular, and apparently they would be able to prosecute the workings there in a manner more favourable than they ever hoped to be able to accomplish.

BENHAR COAL COMPANY (Limited).—The private meeting of the shareholders of this company, resident in the West of Scotland, held in Glasgow was adjourned till the report of the committee of investigation should be issued, as no decided action could be come to without it. The information given at this meeting was obtained solely from employees at the Niddrie property. These pits were stated to be yielding a clear profit of 15,000*l.* to 20,000*l.* a year, after paying interest on debentures, even at the present prices of coal. The output had very greatly increased, and a much larger number of men were employed during the last few weeks. The opinion of the manager is that there is sufficient coal to keep them going for two or three years without opening any new shafts. The general feeling at the meeting was that if the property was put into the market it would yield nothing to the shareholders in those depressed times, so if these reports as to its value are confirmed it should be carried on. The directors propose that creditors should allow their claims to lie over till December, 1880, interest being paid at 5 per cent., and it is believed the largest creditors will consent to this. It was also stated that if the reported falsification of the balance-sheets proved well founded, the directors would have to be punished. No report whatever was made of the value or profits of the Benhar pits.

The Edinburgh Courant of Tuesday, in a long article on the anxiously expected report of the shareholder' committee on this property says the investigation is now concluded, and the report will be issued at the end of the week. It will be a document of portentous bulk. The report of the accountants on the financial position of the company, as disclosed by the books, has been ready for some time, but has been withheld until the mineral and heritable estates had been valued and the whole business affairs thoroughly investigated. Nothing has yet been done in assessing the value of the considerable heritable assets of the company The mineral undertaking, Abercorn Brickworks at Portobello, and the oilworks recently erected at Broxburn and Benhar have been valued by the engineers before selected, but possibly some others of greater eminence may still have to be consulted.

In the accountant's report the total liabilities are stated at 350,000*l.*, made up of heritable bonds on the Duddingston estate, 116,000*l.*; debenture debt, 98,000*l.*; and about 130,000*l.* of floating liabilities. The last-named item is composed of the bank over-draft 57,000*l.*, which is collaterally secured by the personal bonds of some of the directors, the mineral rents due to landlords, wagon lease rents, tradesmen's accounts, North British Railway carriage account, sundry contractors' accounts for brick and oilworks, and 88,000*l.* of acceptances. Estimating that the heritable estate is worth par value, it is brought out that 200,000*l.* of the liabilities are thereby secured. The balance, 150,000*l.*, falls to be met by the mineral estate —that is, coal pits, railways, machinery, plant, wagons, colliers' houses, colliery leases, &c. If this mineral estate is not worth 150,000*l.* then the creditors will not get 20s. in 1*l.*, but if it is worth more than that sum then excess value over 150,000*l.* will represent the value of the ordinary shares. According to the last balance-sheet it was worth 572,400*l.*, but this included 250,000*l.* or 300,000*l.* representing goodwill secured by the vendor, leaving 275,000*l.* or thereby as outlay. Of course, the goodwill may still be worth the sum just stated for it, but at the same time it might be worthless. The report, however, is said to disclose no irregularity of an amount at all likely to have influenced the lamentable collapse of the company, which is apparently due primarily to financial recklessness and excessive expenditure at a period when the utmost caution, prudence, and economy would hardly have sufficed to have carried the concern through the present crisis.

In the engineer's report the values set upon the collieries are very startling compared with what was paid for them. They assess Benhar at 20,000*l.*, and Niddrie at 40,000*l.* These values are only consistent with the supposition that the fields are practically exhausted, and the mining accessories consequently of little value. But engineers of good standing, both in England and Scotland, have within recent years given reports far more favourable than this, and it is said the directors deny the accuracy of this report, and have employed Scotch engineers of eminence to report independently.

DERBYHAVEN TRIAL COMPANY.—This company consisting of only a few persons is feeling the necessity of outside assistance in the present depression, and preparations are accordingly being made to sell a portion of their venture to a limited liability company. The property is situated in the parish of Malen, Isle of Man, and extends two miles in length by one mile in width. There will be about a mile along the course of the main lode. The lease is for 21 years from 1876. The property contains besides the main lode a strong parallel lode, and both are intersected by numerous caunter lodes, all more or less having outcrops of rich copper ore. The expectation is, and it seems very well founded, that the two main lodes will form a junction in depth where an immense wealth of ore will be deposited. From the respectability of the gentlemen connected with it, it is quite safe to say that this is the most promising speculation that the attention of investors can be directed to at the present time. The property affords every facility for the cheap, speedy, and economic conveyance of materials to and ores from the mine. The workings as yet are on a very small scale, but even now from the appearance of the bottom level (40 fms.) they are near grand results, and if they cut the deposit at this point, the investors who miss this chance to have an interest in it will not have a chance equal to it for rapid profits in a lifetime. In regard to the future operations, it has been very carefully estimated that less than 5000*l.* will sink down to the 100 fm. level, and at the same time keep full shifts of men driving and developing the 20 fm. and 40 fm. levels. In the former there is north and south ore to work, varying in the trial winze from 3½ to 14 in. of ore. In the 40 they are very near the ore ground, and the captain reports he is through the nip of the junction, the main vein in easy ground, and opening nicely.

The property has been very favourably reported upon by the best mining engineers, and every facility is offered to investors to inspect it themselves or by their agents. The Government Mining Inspector also, in his official visit, has expressed very favourable opinions on it. At different times well-informed mining people have tried to get an interest in the Trial Company; but the proprietors will not let it out of their hands in that way, and in this they are acting wisely. The ore already obtained is very rich, varying from 19 to 24 per cent. of metallic copper, and some of the junks are wonderful specimens. It should be mentioned that there are traces of old washing floors and reduction works on the property, and it is a matter of certainty that the mineral is there—whoever is fortunate enough to get it. A lead vein also has been discovered at the very south of the property, and it is said a diver engaged on a wreck out at sea was struck by the brilliant richness of a lode at the bottom, which we are justified in believing is the outcrop of this vein. It must not be lost sight of that the mine is in view of and directly in the line of the once celebrated Parys Mountain Mines. Having inspected the property only very recently, its great value is a conclusion arrived at from personal knowledge, and not wholly on the reports of others. Even a non-practical inspector could not fail to be struck by the free feed of water and the extraordinary rich display of gossan. The present proprietors must be commended for their modest valuation of their property, in selling the northern half of the sett at the bare outlay they have made on it—5000*l.*, payable partly in shares, with a certain share of excess profit. This enables the total capital to be fixed at a small sum. The sett is so large that when trade improves the whole capital now proposed could easily be recouped by getting another company to join in part of it. The capital is 15,000*l.*, in 5*l.* shares.

Capital.		Paid	Dividends. Rate per cent. per annum.		Description of shares.	Last
Per share.		up.	Previous.	Last.		price.
£ 10	...	£8	... £ 7	... £ 7†	...Arniston Coal (Limited)	90s.
10	...	10	... 4	... 4	...Benhar Coal (Limited)	12s.
100	...	50	...32s6d‖..34s6d‖		...Bolckow, Vaughan, and Co. (Lim.)...A.	48
10	...	10	... 10	... 10	...Cairntable Gas Coal (Limited)	7
10	...	10	...4s‖ April, 1876		...Chillington Iron (Limited)	50s.
10	...	7	... —	... —	...Clyde Coal (Limited)	60s.
28	...	20	...10s‖ Dec., 1874		...Ebbw Vale Steel, Iron, and Coal (Lim.)	77s. 6d.
10	...	6	... nil	... nil	...Fife Coal (Limited)	55s.
10	...	10	... nil	... nil	...Glasgow Port Washington Iron & Coal (L)	35s.
10	...	10	... —	... —	... Ditto Prepaid	35s.
10	...	10	... —	... —	...Lochore and Capledrae (Limited)	45s.
10	...	10	... nil	... 3	...Marbella Iron Ore (Limited)	30s.
10	...	10	... nil	... nil	...Monkland Iron and Coal (Limited)	16s.
10	...	10	... 5	... 4	... Ditto Guaranteed Preference	40s.
100	...	100	... nil	... nil	...Nant-y-Glo & Blaina Ironworks pref. (L)	20
6	...	6	... nil	... nil	...Omoa & Cleland Iron & Coal (L. & Red.)	2s. 6d.
1	...	1	... 15	... 15	...Scottish Australian Mining (Lim)	35s.
1	...	10s.	... 15	... 15	... Ditto New	16s. 3d.
Stock	...	100	... nil	... nil	...Shotts Iron	60
					COPPER, SULPHUR, TIN.	
4	...	4	... —	... —	...Canadian Copper and Sulphur (Lim.)	5s.
10	...	7	...77s 6d‖..	35s‖*	...Cape Copper (Limited)	29½
1	...	1	... 7½	... 2½	...Glasgow Caradon Copper Mining (Lim.)	15s.
1	...	15s.	... 7½	... 2½	... Ditto New	13s. 6d.
10	...	9¾	... nil	... nil	...Huntington Copper and Sulphur (L.)	12s. 6d.
4	...	4	... —	... —	...Panuelillo Copper (Limited)	20s.
10	...	10	... 6†	... 6†	...Rio Tinto (Limited)	52s. 6d.
20	...	20	... 7	... 7	... Ditto, 7 per cent. Mortgage Bonds	13½
100	...	100	... 5	... 5	... Do. 5 p.ct. Mor. Deb. (Sp.Con. Bds.)	6½
10	...	10	... 22½	... 20	...Tharsis Copper and Sulphur (Lim.)	20½
10	...	7	... 22½	... 20	... Ditto New	14⅞
1	...	1	... —	... —	...Yorke Peninsula Mining (Limited)	5s.
1	...	1	... —	... —	... Ditto, 15 per cent. Guaranteed Pref.	15s.
					GOLD, SILVER.	
1	...	1	... —	... —	...Australian Mines Investment (Lim.)	5s.
5	...	5	...7s. 6d‖..7s. 6d‖		..Richmond Mining (Limited)	11
					OIL.	
10	...	7	... 6	... 15	...Dalmeny Oil (Limited)	7
1	...	1	... 7½	... 25	...Oakbank Oil (Limited)	38s.
1	...	5s.	... —	... 25	.. Ditto	11s.
10	...	10	... 7½	... 2	...Uphall Mineral Oil (Limited) "A"	86s. 6d.
10	...	10	... —	... —	... Ditto "B" Deferred	10
10	...	10	... —	... —	...West Calder Oil (Limited)	15s.
10	...	8¼	... 17½	... 17½	...Young's Paraffin Light & Mineral Oil (L)	13¾
					MISCELLANEOUS.	
50	...	25	... 5	... 6	...London & Glasgow Engineering & Iron Shipbuilding (Limited)	22½
7	...	7	... 15	... 10	...Phospho Guano (Limited)	8½
10	...	10	... 6	... 6	...Scottish Wagon (Limited)	9¾
10	...	4	... 6	... 6	... Ditto New	7½

† Interim. ‖ Per share. * For six months of 1878.

NOTE.—The above lists of mines and auxiliary associations are as full as can be ascertained, Scotch companies only being inserted, or those in which Scotch investors are interested. In the event of any being omitted, and parties desiring a quotation for them and such information as can be ascertained from time to time to be inserted in these lists, they will be good enough to communicate the name of the company, with any other particulars as full as possible.

J. GRANT MACLEAN, Stock and Share Broker.
Post Office Buildings, Stirling, December 19.

Registration of New Companies.

The following joint-stock companies have been duly registered:—

COOKSHEAD COLLIERY COMPANY (Limited).—Capital 10,000*l.*, in shares of 5*l.* To quarry, raise, and sell coal and all minerals and substances from mines belonging to the company. Carrying into effect an agreement between Richard Lawrie and R. Workman, of the one part, and F. J. Cooke and F. W. Suthern, for the company, for the sale of the mining property at Bucknall, in Staffordshire, and for purchasing the Blakelow Colliery Company (Limited), now in liquidation. The subscribers (who take five shares each) are—W. F. Taunton, Crouch End, manager of Artistic Colour Printing Company; J. Blow, Nunhead, clerk; G. Workman, Clapton, master of workhouse; J. Eason, 10, Johnson's-court, engineer; E. B. Denham, Brixton, clerk; G. Goodrich, Crouch Hill, clerk; J. H. Fraser, Camberwell, manager of Messrs. Cray and Rose.

LANHAM PRINTING ROLLER COMPANY (Limited).—Capital 20,000*l.*, in shares of 50*l.* To purchase a patent for the improvement in the manufacture of inking rollers for lithography and other printing purposes, and to grant licenses. The subscribers (who take one share each) are—W. Blades, 11, Abchurch-lane; R. H. Blades, 11, Abchurch-lane; R. Lanham, 11, Abchurch-lane; J. S. Crowther, 81, Englefield-road; B S. Essex, 446, West Strand; W. Notting, Bowling Green-lane; T. Palmer, 8, Wine Office-court.

PNEUMATIC AND STEAM-POWER MACHINE COMPANY (Limited).—Capital 15,000*l.*, in shares of 100*l.* The acquisition, use, and working of the patent rights of Messrs. J. F. C. Farquhar and J. B. Macfarlane for the purification of sugar abroad. The subscribers are—J. F. C. Farquhar, 24, Long Acre, 1; J. B. Macfarlane, 24, Long Acre, 1; G. Wailes, 258, Euston-road, 1; D. Ness, 166, Hollandroad, 1; C. Prior, 18, Bury-street, E.C., 1; D. Jones, 15, Walbrook-street, 2; R. D. Doulton, Lambeth Pottery, 1.

LAND MORTGAGE COMPANY OF AUSTRALASIA (Limited).—Capital 2,000,000*l.*, in shares of 10*l.* To invest and lend money at interest on the security of real or other property in Australasia, or in other colonies. The subscribers are—A. Stein, West Kensington, 5; B. Bryson, Temple, 5; G. N. J. Blackburne, Temple, 5; R. S. Wardle, Temple, 5; L. Bleck, 25, Artisian-road, 5; C. G. Sherwood, 3, Milman-street, 5; W. R. E. Turner, 30, Bedford-row, 2.

ATHENÆUM BUILDINGS AND OFFICES COMPANY (Limited).—Capital 20,000*l.*, in shares of 100*l.* The acquiring of three dwelling-houses, warehouses, and outbuildings in Leeds, pulling down portions thereof, and erecting offices, public rooms, and shops, and letting, leasing, &c., the same. The subscribers are—W. Mathnoman, Leeds, 5; J. Pickering, Leeds, 10; W. Bakewell, Leeds, 10; W. Beckwith, Leeds, 6; G. Pickering, Leeds, 5; W. Smith, Leeds, 5; W. Brownfoot, Leeds, 5.

MICKLEHURST COTTON SPINNING COMPANY (Limited).—Capital 12,000*l.*, in shares of 5*l.* each. The acquiring the mills at the Hollins, in Moseley, Chester, belonging to Messrs. Bottomley and Hyde, together with the plant, stock in trade, &c., and carrying on the business of cotton spinning and manufacturing cotton goods. The subscribers are—J. Bottomley, Stalybridge, 1197; John Hyde, Stalybridge, 1197; T. H. Bottomley, Stalybridge, 1; W. Bottomley, Stalybridge, 1; J. Bottomley, Stalybridge, 1; Joseph Hyde, Stalybridge, 1; Abel Bottomley, Moseley, 1; H. Bottomley, Stalybridge.

DORCHESTER GAS AND COKE COMPANY (Limited).—Capital 17,000*l.*, in shares of 10*l.*, the whole of which are paid-up. The Dorchester Gas and Coke Company, registerad by resolution passed on Sept. 5, 1878, under the Limited Companies' Acts. Number of not to be more than six.

J. MILLER, CARR, AND COMPANY (Limited).—Capital 20,000*l.*, in shares of 10*l.* To carry on the business of stone, marble, granite, and slate merchants. To manufacture and sell all kinds of articles made of stone, granite, &c. The subscribers are—G. Gilkes, Edgbaston, 21; F. W. Crewdson, Edgbaston, 65; C. Tyler, Edgbaston, 1; J. M. Carr, Birmingham, 10; H. Grainger, Birmingham, 1; E. Crewdson, Manchester, 1; F. Rollason, Edgbaston, 1; H. Lloyd, Birmingham, 1.

ARUBA ISLAND PHOSPHATE COMPANY (Limited).—Capital 27,000*l.*, in shares of 10*l.* To carry into effect an agreement made with C. B. Sewell to purchase phosphate of lime and other minerals, products, and deposits, and to crush and reduce same for disposal; to search for and work phosphatic substances and minerals in the Island of Aruba, and to dispose of same. The subscribers (who take one share each) are—C. B. Sewell, 21, Cavendish-square; M. D. E. E.

Lawrence, 1, Royal Exchange Buildings, stock broker; A. M. S. Erskine, 1, Gloucester-street, gentleman; Marcus Beresford, Colchester; Lieut. R. A. E. J. Dawson, London, barrister; G. Smith, Greenwich, confectioner; F. Clark, 13, Fenchurch-street, surgeon.

PARIS HANSOM CAB COMPANY (Limited).—Capital 100,000*l.*, in 5*l.* shares. The carrying on in Paris and other cities and towns in France and elsewhere the business of proprietors of Hansom and other cabs, carriages, omnibuses, &c. The subscribers (who take one share each) are—A. C. Pearey, Islington; J. Ross, Gracechurch Buildings; G. Adams, 35, Great St. Helen's; H. Wood, 89, Cannon-street; N. de Navrocordato, Paris; J. Almada, 171, Queen Victoria-street; G. C. Caines, Bracknell.

NORTH LONDON SUBURBAN TRAMWAY COMPANY (Limited).—Capital 100,000*l.*, in shares of 5*l.* To construct, equip, maintain, and work tramways in Middlesex, Hertford, and Essex. The subscribers (who take one share each) are—C. W. Robertson, 84, King William-street; G. S. Ullathorne, 12, Bolingbroke Grove; H. Clifford, Hammersmith; R. Sanford, 25, Lombard-street; F. Tremayne, Brixton; E. Honychurch, 85, Gracechurch-street; V. Holt, Tottenham.

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the Journal on the Clementina Mine.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by MR. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and sharedealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to *recommend* mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fornightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

WHEAL CREBOR, adjoining Devon Great Consols, has sold upwards of 150,000*l.* worth of copper from its western portion of sett. The present company has sold about 40,000*l.* worth, and would have made a good profit had copper kept its old price; this ore ground all dipped east, and about three years ago a new lease was obtained of a great extension of eastern ground towards the rich old Crowndale, and a new shaft is in course of sinking in the very heart of the ore ground. The mine is worked entirely by water-power, and at small cost. It has been well known, however, that half the mine was owned by one gentleman, who had during his lifetime refused 6*l.* per share for his interest, and as his sole executrix declined to go on with such a stake in any mine, the shares (nearly 3000) have been hanging like a nightmare over the mine and the market. We are glad to announce, therefore, that we have purchased the shares in one lot, and have placed most of them in good hands. To show his confidence in the mine the agent and his friends in the district took nearly 1000 shares. Any fair rise in copper will aid the mine and the shares materially.

PARYS MOUNTAIN.—The open-cast, which is of great length and breadth, belongs half to Parys Mountain and half to the Mona Mine, worked by a local company. The Mona were three years driving their cross-cut to get under the open-cast, and have now, we understand, a very rich lode, but of this we hope to hear more in a day or two.

D'ERESBY MOUNTAIN.—The winze from No. 4 level has now been drained by No. 5, which is very important, and we look for a good discovery here. In fact, should the lode be found as good at No. 5 as it is at No. 4 level, the value of the mine will be doubled. In the Valley shaft, which is now being cleared, good lead is found in the debris. This bottom, beyond which the old men could not go, will soon be reached. This mine, and Aberllyn, we hope to see among the prizes of 1879, and Clementina and D'Eresby Consols will follow.

A SCOTCHMAN—CAKEMORE COLLIERY AND BRICK COMPANY (Limited).—The result of our enquiry is this—the company is in 30,000 shares of 3*l.* each, fully paid. The last 5750 shares issued and in course of issue being preference shares, bearing 7½ per cent. interest, in addition to the participation in surplus profits. The chairman of the company is Mr. H. J. McCulloch, consulting colliery engineer to the Admiralty. The whole property has lately been inspected by Mr. J. Skidmore, jun., M.E., and his report has been placed in our hands. Of the colliery he speaks in the highest terms, and states the machinery and plant are capable of raising 1500 tons per week. He estimates the coal under 85 acres of ground, if it should maintain its present appearances, at 2,125,000 tons of thick coal, 300,000 tons of heathen coal—a term we never heard before, not being well up in coals or in burning heathens—and 200,000 tons of ironstone. In reference to the famed clays he says—"The mines of clay and marls are all that can be desired, and the brickwork plant, and machinery are the best and most perfect and complete in the whole district." The fire-clay is estimated at 800,000 tons.

In regard to present operations, statements have been handed to us showing coals and bricks sold for one month, with the cost of working, &c., and they show a good profit. Based upon these returns, the estimates given us, in annual profit is—colliery, 17,000*l.*; bricks, 5500*l.*: total, 22,500*l.*, or 22½ per cent. on the capital of 90,000*l.*

We do not pretend to know much about coal mines, nor to advise as to collieries generally. In this instance our enquiry has been directed chiefly with a view to ascertain, as our correspondent requested, how far these shares were secured in regard to the 7½ per cent. preferential dividend, and this seems safe enough from all we can see, as only 1293*l.* 15*s.* is required for it. This is made a *first charge* upon the profits, estimated at 22,250; on any surplus above 1293*l.* 15*s.* the shares are also to participate.

SATURDAY, DEC. 14.—Market very quiet. West Tolgus, 38 to 40; Parys Mountain, 7s. to 9s.; Marke Valley, 15s. to 20s., Devon Great Consols, 30s. to 35s.; Van, 18 to 19; Great Laxey, 18 to 19; East Van, 1¾ to 2; Aberllyn, 11 to 13; Carn Brea, 31 to 33; Dolcoath, 28 to 30; South Condurrow, 10¼ to 10¾; South Frances, 6¼ to 7; Agar, 3¾ to 4¼; 7; Santa Barbara, 37s. 6d. to 42s. 6d.; Richmond, 10½ to 11.

MONDAY, DEC. 16.—Market a shade firmer. Van, 18 to 19; Great Laxey, 18 to 19; Roman Gravels, 6¼ to 6¾; Aberllyn, 11 to 13; Glenroy, ⅛ to ¼; Tankerville, 2½ to 3; West Chiverton, 1½ to 2; Pateley Bridge, 2 to 2¼; Leadhills, 2 to 2¾; Dolcoath, 28 to 30; Carn Brea, 31 to 33; Tincroft, 8 to 9; South Frances, 6¼ to 7; West Frances, 3 to 3½; Grenville, 2 to 2½; Parys Mountain, 7s. to 9s.; Devon Great Consols, 30s. to 35s.

TUESDAY, DEC. 17.—Market very quiet, and prices about the same as yesterday.

WEDNESDAY, DEC. 18.—Market again very quiet, and the following prices are merely nominal. Aberllyn, 11 to 13; Carn Brea, 31 to 33; Devon Great Consols, 30s. to 35s.; Dolcoath, 28 to 30; East Van, 1¾ to 2; Glenroy Lead, 10s. to 15s.; Great Laxey, 18 to 19; Marke Valley, 15s. to 20s.; Leadhills, 2 to 2¾; Parys Mountain, 7s. to 9s.; Pateley Bridge, 1¾ to 1¾; Penstruthal, 3s. to 5s.; Roman Gravels, 6¾ to 6¾; Rookhope Lead, 5s. to 10s.; South Condurrow, 10¼ to 10¾; South Frances, 6¼ to 7; Tankerville, 2½ to 3; Tincroft, 8 to 9; Van, 18 to 19; West Chiverton, 1½ to 2; West Frances, 3 to 3½; West Tolgus, 38 to 40; Agar, 3¾ to 4¼; Grenville, 2 to 2½; Peevor, 6 to 6½; Santa Barbara, 37s. 6d. to 42s. 6d.; Richmond, 10¾ to 11.

THURSDAY, DEC. 19.—Market again very inactive, and prices almost the same as quoted yesterday.

FRIDAY, DEC. 20.—There is very little business doing, and prices, therefore, merely nominal. Van, 17 to 18; Great Laxey, 17½ to 18½; Roman Gravels, 6¼ to 6¾; Tankerville, 2½ to 3; Aberllyn, 11 to 13; West Tolgus, 38 to 40; Parys Mountain, 7s. to 9s.; Devon Great Consols, 30s. to 35s.; Carn Brea, 31 to 33; Dolcoath, 28 to 30; South Condurrow, 10 to 10½; South Frances, 6½ to 7; Agar, 3¾ to 4; Peevor, 6 to 6½; Grenville, 2 to 2½.

MR. WILLIAM H. H. WATSON having had some years' experience in Practical Engineering and Mining in Cornwall, as well as two years' practice in the London Stock and Share Markets, begs to offer his advice and services to Shareholders and Intending Investors in Mines, and in the Purchase and Sale of Shares.

W. H. H. W. has Special Business in Tankerville, Arendal, Monydd Gorddu, Morfa Du, Parys Mountain, Wheal Crebor, and Cakemore 7½ Preference Shares.

Address: W. H. H. WATSON, 1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON, E.C.

Original Correspondence.

THE ELECTRIC LIGHT.

SIR,—Although the Jablochkoff lamp, as at present used on the Thames Embankment and Holborn Viaduct, gives a fairly good light, I was certainly struck with the frequency of the purple shade which has been stated in the *Mining Journal* to indicate a failure of continuity of the maximum light, which I can well believe to be the case, inasmuch as during the purple intervals I could see quite distinctly three vertical shadows upon the lamp globe, which I suppose are the shadows of the three unconsumed Jablochkoff candles. Now, this irregularity is so fatal to the success of the light that every possible attempt should be made to discover the cause which, in my opinion, is not difficult to remedy. There can, I think, be no doubt that during the intervals the electric arc has ceased to exist, and the only remaining light is due to the incandescence of the carbons, or as I would suggest, of the carbons and plaster also, for I believe that the real cause of the failure is that there is some conducting material in the plaster which practically puts the carbons in contact, for only an instant, it is true, but long enough to destroy the continuity of the light. The remedy would be to pay as much attention to the purity and uniformity of the plaster as is now paid by Mr. Carré to the purity and uniformity of the carbons. The remedy would be the same if the break results from the opposite cause—from the plaster not breaking away quickly enough, and thus obstructing the current.

But the great question in a commercial point of view is the cost of the light. It is stated on the authority of the principal Government gas engineer at Paris that to obtain the necessary amount of light for street illumination by electricity costs at least eight times the price of gas, and that, therefore, the Municipality of Paris had determined to abandon electric illumination. Owing to the desire of certain Parisian *faiseurs* to obtain some British capital by the electric illumination bubble, the early abandonment of the electric light at Paris was most disheatening, although they have some little comfort in the delay of the final abandonment at Paris until Jan. 15, 1879, as in five weeks much may be done if capitalists be not very watchful. But as a commercial enterprise electric illumination is doomed. The earlier collapse of the whole concern has only been prevented by the free expenditure of money by the illuminators to cover the loss made upon the contracts undertaken. It was in the first instance attempted to light up the Place de l'Opera, the Avenue de l'Opera, and the Place du Theatre Francais with about 40 Jablochkoff lamps (the number of gas burners replaced being 344), but the 40 lamps failed to yield sufficient light, and the contractors, at their own cost, increased the number to 62 lamps, which undoubtedly produced a highly satisfactory effect. The 62 lamps were calculated to be equal to 682 of the gas burners replaced, so that in round numbers the street was in one sense twice as well illuminated.

But the unfortunate thing with electric illumination is that we cannot have less than this double light; to use 31 Jablochkoff's in the avenue and places named would have been like trying to illuminate 20 separate rooms with 12 candles; indeed, it has been seen that 40 Jablochkoff's were not equal to the 344 gas burners removed. The enormous cost of maintaining the electric lights is no doubt the cause of the secrecy of the Société Générale d'Electricité; but the cost can readily be obtained indirectly; the 46 single-candle and 8 double-candle lamps were divided into four groups, to which the electricity was supplied by four 16-light double Gramme machines, driven by four 20-horse power nominal engines=80-horse power in the aggregate, but as each of these would probably be capable of working up to 50-horse power indicated, the actual cost for power is difficult to ascertain, though it is confidently stated that they were never run while the lamps were in use at less than 45-horse power indicated each, or 180-horse power in the aggregate. It is this fact that raised the minimum cost per lamp per hour to 11d., according to the admission of the Société Générale; whilst others who have had good opportunities of ascertaining details declare that, everything included, the cost is not less than 1s. 6d. per lamp per hour—that is, 2*l.* 16s. 10d. per hour by the lower estimate, and 4*l.* 13s. by the higher, for illuminating the entire line. The 344 gas-burners replaced cost, everything included, 7·224 frs., or 6s. nearly, per hour; and it was only at this latter rate that the Municipality of Paris would permit the supply of electric illumination to be continued until Jan. 15; consequently, the Société Générale d'Electricité lose 2*l.* 10s. 10d. for every hour their lamps burn. This would hardly encourage English capitalists to subscribe to developing their system of lighting. If twice the light is required, which is all the Société profess to give, it can be obtained by gas for 12s. and by the Jablochkoff lamps for 2*l.* 16s. 10d. Those requiring light can choose for themselves.

Then, as to the future of electric illumination, it is equally unsatisfactory, even assuming the Société's estimate of 11d. per lamp per hour to be correct, which is extremely doubtful. At the time the estimate was made Mr. Carré was regularly supplying for Regnier, Werdermann, Rapieff, and other lamps at 1fr. per metre, so that the Jablochkoff candle, with half a metre of carbon could not have cost more than 80 centimes each, as stated by those concerned; this would represent 5d. per hour for the candle, and leaves 6d. per lamp per hour as the cost of the electricity. No other producer of the electric light has been able to generate it at less than 9d. to 1s. per lamp per hour, so that the 6d. is in the highest degree favourable to the Société, and consequently if Mr. Carré could be induced to manufacture Jablochkoff candles and give them to the Société Générale for nothing, they would still be unable to supply by electricity an amount of light equal to that now supplied with the 62 lamps for less than 31s. per hour, whilst the same amount would be obtainable with gas for 12s. per hour, so that apart from the greater convenience of gas from its facility for distributing the light, the loss by using electricity would be 19s. per hour. When the exact figures can be obtained for London the comparison will probably be about as unsatisfactory. ELECTRICIAN.

Dec. 19.

DEVON GREAT CONSOLS.

SIR,—In my letter of last week an error occurs, by which the following words appear as a quotation:—"That mines not enriching the shareholders should be suspended." These words being meant only as comment on the remarks which had appeared with regard to stopping the Devon Great Consols, I should be glad to be allowed to make this explanation, my object being to state nothing that does not come within the line of fair argument.

London, Dec. 20. A MINE ADVENTURER.

Meetings of Public Companies.

GLENROY MINING COMPANY.

The ordinary general meeting of shareholders was held at the company's offices, Austinfriars, yesterday,

Mr. J. Y. WATSON, F.G.S., in the chair.

Mr. MURCHISON having read the notice calling the meeting,

The CHAIRMAN stated that as the directors' report and the accounts had been printed and circulated among the shareholders, they would probably be taken as read. In reference to the mine, Capt. Rowe, he said, was present, and would answer any questions put by the shareholders. At the last meeting it had been decided to confine all operations to sinking the shaft, which was now down 93 fathoms, and as it had gone down, according to Capt. Rowe, between two distinct runs of ore ground seen at the 65, he (the Chairman) thought when it reached a depth of 100 fms. the lode should be cut through and levels driven north and south. At Great Laxey the hanging part of the lode was that which yielded the most ore; and this hanging part, or heading, had never been seen in the shaft at Glenroy below the 65, although the lode in the shaft was 4 ft. to 6 ft. wide.

The accounts and directors' report were then passed unanimously; Mr. F. W. Daukes, on the nomination of Mr. KERLY, re-elected a director; and Mr. Mitchell, proposed by Mr. WADDINGTON, re-elected auditor.

A long discussion then took place as to whether the shaft should be continued to the 110, as originally proposed, and which would take nine months to do, or whether a level should be driven from the 100, and eventually the point was left to the discretion of the directors.

Capt. ROWE then stated that when instructions had been given last year to stop all operations except sinking the shaft he had been very reluctantly compelled to stop a cross-cut at the 25 towards a parallel lode, and a month ago he took upon himself, without consulting the directors, to take four men from the shaft and continue this cross cut. When he was underground on Friday last a large quantity of water was issuing from the end, and he had just received a telegram from the agent to say he had just come upon the lode, but what it would turn out of course no one could say at present.

The proceedings terminated with the usual complimentary vote to the Chairman.

PANDORA LEAD MINING COMPANY.

The ordinary general meeting of shareholders was held at the offices of the company, Austinfriars, yesterday,

Mr. J. J. PYNE in the chair.

The London manager read the notice convening the meeting, The report and accounts were taken as read.

The CHAIRMAN said—I am very pleased to be able to say, gentlemen, that the mine never looked better than it does at the present moment. I have had a letter this morning from Capt. Nottingham, our local agent, in which he tells me that in the bottom of the mine—in the 33 south on the new lode—the lode is worth at the present time 3 tons of lead to the fathom for the full width. I need not tell you that that is an exceedingly good feature, and if it should hold out, as we have every reason to expect it will, it will greatly add to the returns, and to the future value of the property. Since our special meeting in August we have bought, as you will have seen from the report, a very good engine, made by Roby and Sons. This engine has been erected, and is now ready for working, so that there will be no delay in future on account of the water accumulating in any portion of the mine. Since the special meeting we have sold 20 tons of lead and 30 tons of blende, and we have just sampled another 20 tons of lead and 25 tons of blende. We should have sampled more ore, but we have been stopped by the severe frost. All through the summer, as the shareholders are I think aware, we were not able to go on with underground workings, simply from the fact that we had no water to work the pumping wheel with, and we could not work the engine. However, we shall not suffer from that cause again; we had never suffered to such an extent—although we have from time to time been in want of water—as we did during the past summer from this deficiency; and it is satisfactory to think that there will no longer be that difficulty. Besides the sampling which I have mentioned, we have 5 tons of lead at surface partly dressed, and about 10 tons broken underground, as well as about 25 tons of blende ready dressed. Captain Nottingham informs me in the letter which I received this morning that he will be able to carry on the mine with the present workings at a monthly cost of 200*l.*, and this, even at the present existing prices of lead and blende, would enable us to pay our costs. This is very satisfactory, but we desire to open up the mine more than it is at present, because we want to make it a permanent dividend-paying property, and the only way to do that is to sink the shaft to another level, and thus increase the returns by stoping and sinking winzes. This is the reason why we propose in our report that you should give us powers to-day to issue 1000 shares, which we stated in the original prospectus would not be issued without the consent of a general meeting of shareholders, and by-and bye I shall have to submit a resolution for the purpose of asking your consent to this issue. I should be happy to explain the plan of the workings which we have here, or to give any explanation in my power to any shareholder who may desire additional information respecting the mine. I beg now to move "That the report and accounts now presented be passed and adopted, and printed, and circulated amongst the shareholders."

Mr. C. J. HILL seconded the motion.

A SHAREHOLDER asked what was meant by an item of 656 shares unappropriated?—The LONDON MANAGER replied that those were the bonus shares which would be allotted when the amounts were paid in full on the shares taken. These bonus shares were issued to the shareholders in the old Willoughby Company who took shares in this—the Pandora—company.

The SHAREHOLDER asked whether the 1000 shares which it was now proposed to issue would complete the issue of 12,000 shares?

The CHAIRMAN said it would.

Mr. HILL remarked that the directors originally had 3000 shares to issue, but it was agreed that 1000 of these should not be issued without the consent of the shareholders. It was now considered that it would be to the benefit of the company to develope the mine more extensively, and for this purpose the shareholders would be asked to sanction the issue of these unallotted shares as and when the directors should think fit.

A SHAREHOLDER asked whether the costs were being met now?

The CHAIRMAN, in reply, said at the present time the mine was paying the cost, but during the summer the costs were going on to some extent, although no returns were being made. The money derived from the issue of the 1000 shares would be devoted solely to the more extensive development of the mine. They had to raise 50 per cent. more ore to make the mine pay now than when ordinary prices were obtained. They had had as much as 16*l.* per ton for their lead, but they were now getting only 9*l.*

Mr. S. YORK said they were only raising sufficient ore to pay the costs.

A SHAREHOLDER said Mr. Eddy, who was considered a very high authority, spoke very encouragingly on the prospects of the mine

Mr. HILL remarked that if lead had been at its normal price during the past year they would have been in a position to pay a dividend at that meeting.

The reports and accounts were then adopted unanimously.

Mr. YORK proposed the re-election of Mr. J. J. Pyne as a director, and said that gentleman had been connected with the mine from its infancy, and had visited it something like 50 times. He had always had the greatest confidence in the mine, and that it would become a dividend-paying property.

Mr. J. BUSH seconded the proposition, which was carried, and the CHAIRMAN briefly returned thanks for the compliment.

Mr. E. Ashmead, the auditor, was also re-elected.

The CHAIRMAN then said the resolution which he had now to move was respecting the issue of the 1000 shares, with regard to which it was stated in the original prospectus that they would not be issued without the consent of a general meeting of shareholders, and, therefore, advantage would be taken of that meeting to obtain this consent. He would propose—"That the shareholders hereby consent to the directors issuing the 1000 shares with bonus shares now in hand at such time or times and in such manner as they shall think proper." The money so raised would be devoted solely to the development of the property.

Mr. HILL seconded the proposition, which was carried.

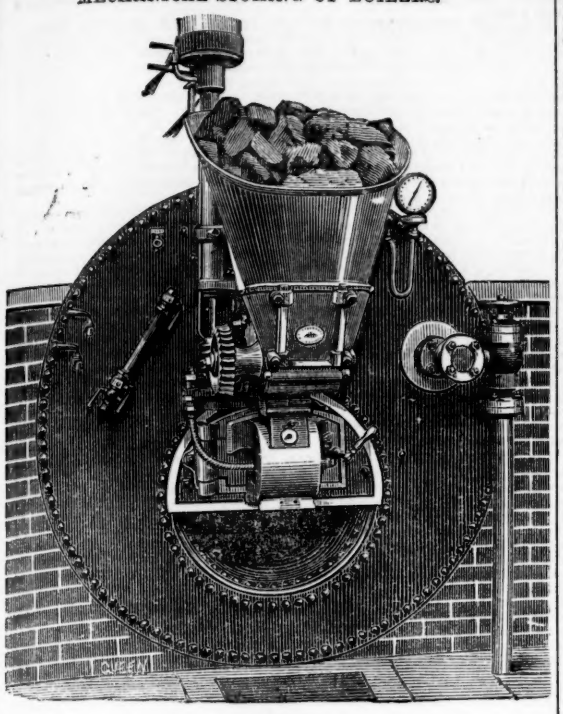
The meeting then terminated with the usual compliments.

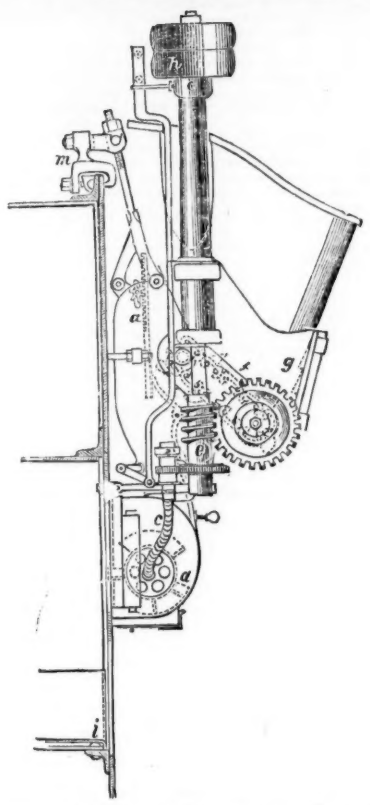
ALMADA AND TIRITO CONSOLIDATED SILVER MINING COMPANY.—At the meeting yesterday of the shareholders of the above company the report of the directors was adopted. Since the report was issued a more cheering account has been received of the prospects of the mine. A full report of the proceedings will appear in next week's Journal.

COMBMARTIN MINE.—At a general meeting of the adventurers held on Thursday—Mr. Frederick Thomas in the chair—the balance-sheet showed a balance of liabilities over assets of 3*l.* 2s. 6d. A call of 6d. per share was made. The agents' report was of a very encouraging character. In the 15 east they expect in 3 or 4 fms. further driving to get under the favourable indications the lode presents at surface. The caunter lode in the adit has improved in the last 6 ft. driving, and the agents hope to be able to put a good value upon it shortly. The adit cross-cut is being driven with the object of intersecting four other lodes. In their concluding remarks the agents say—"We are strongly of opinion that by perseverance a good and profitable mine will be found, as the indications in the adit level are of the most favourable kind; besides, the mine is situated in the best known mineral district in Devonshire. To carry on our present operations a cost of about 65*l.* only per month will be required."

[Forremainder of Meetings, see to-day's Supplement.]

MECHANICAL STOKING OF BOILERS.





The economy resulting from regular and careful feeding has long been recognised, and consequently mechanical stokers have, especially in the Lancashire district, been for some years past in great favour. Mention was made in the *Mining Journal* several months ago of an improved apparatus of this class, invented by Mr. H. C. CARVER, of Llanidloes, Wales, and in addition to its having been largely adopted, a further recognition of its merits has been afforded in the award of Honourable Mention at the Paris Exhibition. Mr. Carver has taken especial care to make the stoker efficient, neat, durable, and difficult to derange, and to have the parts accessible and replaceable with ease, rapidity, and accuracy. Amongst its novelties are—1. Its ability to reduce lump coal of moderate size into "nuts" with certainty and regularity by an apparatus made chiefly of hardened steel.—2. A fuel distributor, consisting of a drum rotating on a horizontal axis, and provided with blades formed so as to propel the fuel over the whole of the grate area. It is mounted upon the fire door in such a manner that the opening and closing of the latter are not interfered with; and as a result of the arrangement, no reduction in the height of the doorway is required, as in the case of those stokers which have the distributing apparatus placed over the doorway.—3. The readiness with which the fuel feed may be adjusted to any rate, up to as much as 7 cwts. per furnace per hour, by merely turning a small handle. This feature is an important one in cases in which the demand for steam is intermittent, or of a fluctuating character.—4. A simple and inexpensive flexible shaft for driving the distributor, which reduces the gearing required for this purpose to a minimum.—5. Various devices, unaccompanied by any objectionable complication of parts, for making the bearings, whether vertical or horizontal, self lubricating, and for causing the spent oil to be discharged in most cases into the furnace.—6. The method of attaching it to the boiler, without drilling any holes in the latter, which is of such a nature that the machines may be readily transferred from one boiler to another of different dimensions, and which, therefore, obviates the necessity of having machines for spare boilers.

It appears that the inventor had several years' experience in Lancashire in the manufacture of mechanical stokers, during which time he became acquainted with many of the defects in other machines of this class, and he believes that he has been successful in avoiding many of them. It is mentioned that each stoker feeds one furnace, and forms an entirely independent machine. Hand firing can be resorted to without any impediment, and no boiler rivets are concealed from view by the stoker. For double flued boilers two machines, and entirely independent of each other, are employed. The strength of the various parts of the coal-breaking apparatus is so proportioned that in the event of its becoming arrested by unduly hard foreign substances (such as pieces of metal) accidentally mixed with the fuel, the driving belt slips, and no damage is done to the machine. The precise character, however, of the stoker will be best understood from the subjoined description, and the various details of the machine are explained by the above drawings, wherein Fig. 1 is a side view of the machine, showing the boiler to which it is attached, in section. Fig. 2 is a front view of the machine, partly in section. Fig. 3 is a plan near the delivery orifice of the coal box, the boiler flue being in mid-section, showing more particularly the right and left hand screws of the false bottom. Figs. 4 and 5 are enlarged views of the endless chain, and of the parts connected therewith. Figs. 6 and 7 are enlarged views of the distributor driving apparatus, and of the parts connected therewith. Fig. 8 shows an alternative arrangement in connection with this apparatus. Figs. 9 and 10 are enlarged views of the distributor, and of the parts connected therewith.

In the above diagrams a is the upright shaft; b the fast driving pulley, the boss of which has a tubular extension or inverted cup at its lower end; c is the bearing, in which this tubular extension works or revolves, and which together with an internal tube, as shown in Fig. 1, forms an annular oil cup, which retains the lubricant; d is a footstep, which carries the upright shaft, it is attached to the coal box, e, by the single hinge pin, f, and abuts against the coal box at g; h is the distributor shaft, which is driven by the spur-wheels, j, k, and flexible shaft, g, through a clutch, which consists of the ratchet, l, secured to the spur-wheel, j, and of a trigger and spring working in a socket upon a disc, forming part of the worm, m, as shown in Figs. 6 and 7. The pinion, k, Fig. 8, is carried by an oil vessel, to which the axis, u, is secured, and a tube or bearing, in which the axis will revolve, passes though an eccentric hole in the disc, o, and together with the disc is held in the bracket, p, by a nut and collar, as shown. A collar at the upper end of the axis, secured by a pin, prevents the pinion and its attachments from falling down; r, Figs. 9 and 10, is the distributor body, which is shown open at the right hand end, Fig. 9. At the other end is a boss, as shown, into which is screwed one part of the axis, h, which is formed in two lengths, as shown, to facilitate the removal of the distributor from and its replacement in the distributor case. The part of the axis which projects beyond the distributor case being required to agitate the needle of a lubricator placed in the hole, shown in the socket-like bearing, s, in which the axis revolves. This bearing is held in the boss, t, forming part of the distributor case, u, by a set screw, v, and is provided with another set screw, w, which closes one end of it, and affords facility for the longitudinal adjustment of the axis, h. The distributor body is perforated, for the promotion of a current of air about the bearing, so as to prevent it from becoming overheated; x is a trap-door to a receptacle in the bottom of the distributor case; u, through which any accumulation of fuel inside the receptacle and case may be readily discharged; y is the lever of the belt shifter, and z is a catch in connection with it, which locks the furnace-door, g, in its closed position so long as the belt is on the fast pulley, by passing through the casting of the coal box and into the furnace-door; 1, 1, Figs. 4 and 5, are the C-shaped steel links (some of which are provided with teeth, 23) of the endless chain, connected together by the steel pins, 2, 2, which project at the sides of the chain, and at their ends travel within and against the curved fixed guides or liners, 3, 3, which protect the coal box from abrasion; 4, 4, are toothed wheels upon the shafts, which both carry and drive the endless chain; and 6, 6, are toothed wheels upon the shaft, 7, which only carry the endless chain; 24 is the adjustable barrier or plate, which regulates the supply of fuel; it is operated by two racks and pinions and a crutch handle, as shown.

Upon reference to Fig. 5 it will be seen that 8, 8 are socket bushes fitted into the sides (one of which consists partly of a removeable plate 22) of the coal box, e, and are provided with lubricators, their construction being such that the lubricant does not escape to the outside of the machine; 10 is a saddle secured to the boiler immediately above the furnace flue, as shown in Figs. 1 and 2, by means of two set screws, screwed down on to a pad, which bridges over the rivet heads of the boiler; 11 is a forked support, which swivels or is adjustible in the saddle, and is secured to it by a screwed end furnished with a nut; it carries the tube or holder, 12, by means of trunnions or axes, as shown; through this tube or holder passes the suspending rod, 13, pivotted at its lower end to the coal box, and screwed and furnished with a nut which rests on the tube or holder at its upper end; 15 is a branch connected at one end to the suspending rod; its other end is in the form of a segment concentric with the hinge pin of the suspending rod, and is secured by a bolt to a bracket upon the coal box; the suspending rod is thus prevented from moving about its hinge after having been set to the required angle; 16, 16 are joint bolts and eyes for connecting the coal box to the furnace front, means of adjustment being afforded by the socking nuts, as shown; 17, 17 are adjustible studs, made of a bent form so as to enable them to be set clear of rivet heads or other projections on the boiler face; 18 is the false bottom plate or lining, to which are secured brackets, 19, of the form requisite for receiving the bearers, on which the furnace bars are to be supported; the plate is held in position in an ordinary furnace flue by the flange shown at its outer end which abuts against the flue plate and by the tongue piece, 20, which is attached to the false bottom plate and fits against and between two of the flue rivets; small projections or supporting feet, 21, are provided upon the false bottom plate, and brackets for retaining the false bottom plate at any required distance from the flue plate, should the flue rivets not be suitably placed for this purpose.

PUMP FOR LIMITED SPACES.—A pump of novel construction, having the recommendation that it takes up a very small space relatively to the amount of work which it is capable of performing, has been invented by Lieut.-Col. G. V. FOSBERY, Bengal Staff Corps. He states that, owing to its novel construction, a pump made according to his invention may be placed and will operate easily in confined and small spaces, such as would not be sufficient to receive a pump of any of the ordinary forms now in use, and of anything like the same power as his improved pump. In carrying the invention into practice he provides a vessel, which may be of iron, brass, or other material, and prefers that it should be in the form of a round basin, open at top and bottom. To the bottom or lower part of the said vessel he attaches a suction pipe, which should be of suitable length to dip into the water or other liquid or fluid to be pumped. This pipe need be only a few inches in length in cases where the liquid to be pumped can be reached with such a length, as is the case on board ship and in other places. In combination with the vessel he provides a disc or diaphragm of india-rubber, which will exclude the entry of air, and securely attaches the diaphragm to the edges of the top of the vessel by rings, and screws, and nuts, or by other suitable means, so that the junction between the edges of the vessel and the elastic diaphragm may be air-tight. Through the centre of the flexible diaphragm he passes a rod, to the lower end of which is fastened a piece of metal or other hard substance. This piece is curved or rounded on its upper side, and fits into the space formed by the rising of the flexible diaphragm in the act of pumping. The said piece thereby forms a solid support to the said diaphragm when the latter is raised. To the rod which passes through the diaphragm, and just above the latter, another piece of metal or other hard substance is fastened, also of a curved or rounded form, and the curved part is placed downwards—that is to say, it is presented towards the said flexible diaphragm, so that when the latter is pressed downward in operating the pump this piece fits into the diaphragm and forms a support for it at its upper surface. At the lower part of the vessel he provides a suitable valve, which may be a disc of india rubber, fastened centrally by a rivet or pin, or otherwise, which disc will yield upwards at its sides, when a vacuum is created above it by the action of the flexible diaphragm, and the water will thus enter the vessel, to be thrown out at an outlet pipe suitably provided in the side of the vessel by the downward action of the diaphragm and inner and outer curved pieces; or the exit and entrance pipes may enter the vessel and be provided either within or without it with suitable valves; or one pipe may enter the vessel in a curved or other suitable form, and communicate with the water or other fluid in the vessel by an aperture or apertures.

The rod which passes through the flexible diaphragm may be attached at its upper end to a crank handle working in suitable bearings to operate the pump, or the said rod may be worked in any other suitable manner. The to-and-fro movement of this rod alternately raises and depresses the said flexible diaphragm, the upward stroke causing a vacuum within the said vessel, and the water consequently to enter through the valve at the bottom of the vessel, and the downward stroke forcing this water out through the outlet pipe. The curved or rounded surfaces aforesaid serve to strengthen and support the flexible diaphragm when the latter is distended in its upper and lower positions. When a pump construction according to this invention is used for the purpose of pumping air, gas, or other similar fluids, valves will preferably be used which will be actuated by employing a cylinder filled with a suitable fluid in which a perforated disc will actuate a valve of short stroke, the two ends of the rod actuating the pump itself, permitting the rod to take its full stroke after having placed the valve in position.

ACTUATING THE VALVES OF STEAM-HAMMERS.

Hitherto the valves of steam-hammers when worked automatically have been actuated entirely by mechanism in connection with and operated by the hammer head or tup, and it has not been possible in self-acting steam-hammers to employ valves having more lap on the steam than on the exhaust side. Many attempts have been made to work the steam expansively in automatic hammers by modifying the mechanism in such a way that the valves, although still entirely actuated by the hammer head, instead of making a continuous stroke, are arrested immediately on cutting off the admission of steam, so as, instead of opening at once to the exhaust as usual, to remain closed for a sufficient length of time to enable the steam to work expansively; but as in steam-hammers both ports are necessarily closed at the same instant, the result of attempting to work the steam expansively in the way above described has been to cause back pressure or compression on the other side of the piston, and little or no advantage has been gained.

Now according to the invention of Mr. CHARLES DAVY, of Sheffield, it is proposed to employ a valve or valves having lap on the steam side, as in the case of an ordinary steam-engine, but instead of depending entirely upon the motion of the hammer head or tup to actuate the valve or valves, he employs the conjoint action of the hammer head or tup and of a revolving shaft, driven from a source of power entirely independent of the hammer, and acting in such a way the one in relation to the other that a compound action is given to the valve where a single valve is employed, or where two valves are employed a differential motion is imparted to the two valves, wherreby the steam is worked expansively, precisely as in an ordinary steam-engine. In carrying out the invention he employs an arrangement of levers worked by an incline plane fixed to the hammer head or tup, or by any means hitherto used for imparting motion to the valve by the action of the hammer head or tup; and when a single valve is used he proposes, according to one arrangement, to mount the fulcrum of one of the said levers, on a lever operated by an eccentric or crank on a revolving shaft driven from any independent source of power, he may otherwise combine the action of the hammer head or tup and of the revolving shaft so as to produce the compound motion desired. In order to obtain an equivalent effect he may employ two valves, the one inside or on the back of the other, and actuated independently, the one by the usual mechanism from the hammer head, and the other by the crank or eccentric above mentioned, so as to impart a differential motion to the two valves.

PERPETUAL MOTION.—An arrangement which has been constantly patented during the last two centuries, and which only a few years since was claimed by Mr. Charles Boutet, of Channel Bridge celebrity, has been re-invented by MR. L. P. OTHON, of Queen's-road, St. John's Wood. He states that he employs a wheel of any suitable diameter and thickness mounted on shafts, which communicates its centrifugal power by means of pulleys to the machine which it is intended to drive. He furnishes the wheel round the whole or part of its circumference, in the interior or exterior thereof, with air-vessels made of india-rubber or other materials or metals. These vessels communicate, either by means of tubes or making the wheels hollow, with suitable valve arrangements. If necessary compressed air or uncompressed air, gas, or other fluid lighter than water is admitted into the vessels, so that the greater part thereof is filled to obtain a force real and active. He proposes to direct by means of eccentrics or equivalents the air from one side of the wheel to the other, whereby he obtains on one side the chambers completely or partly full, and on the other completely or partly empty. By means of a lever or other compliance he supposes he can regulate the direction of the air into the chamber desired. A wheel thus constructed, capable of being inflated with air on the one side, and emptied of air on the other side, and submerged in water or any other liquid, the side of the wheel which is inflated with air will always have a tendency to rise in the water, and this, therefore, gives the inventor, he thinks, a centrifugal force which can be calculated by the displacement of the air chambers in the water. A wheel thus constructed may be wholly or partly submerged in the liquid. In some cases the eccentric may be dispensed with, and the air from one side of the wheel be sent back to the other through the agency of cords or straps passing over one or several pulleys. Instead of submerging the wheel in the water he sometimes does the reverse—that is to say, he provides a water-wheel instead of an air-wheel, and he puts the wheel in motion in the air, whereby the effect produced will be similar, although the power is not so great. This motor may be made in wood, metal, or other material.

THE MODE OF COMBUSTION IN THE BLAST-FURNACE HEARTH—It is a well-known fact that under similar conditions a ton of pig-iron can be made from any ore with less fuel when charcoal is used than when coke or anthracite is used for heating. The cause of this superiority is entirely undiscovered, and no explanation has yet been offered which has won even temporary acceptance. Such as they are the hypotheses heretofore presented are of two general kinds, and they come from those two divisions of the working force which are so often antagonistic in all professions—the scientific and the practical men. Scientific men attribute the superiority of charcoal to its quick and thorough reduction of carbonic acid. Practical men seem to be mostly unanimous in thinking that the high consumption of dense fuels has some dependence upon their slower rate of combustion. In a paper read at the Chattanooga meeting of the American Institute of Mining Engineers, Professor John A. Church, of Columbus, Ohio, contends that both the scientific and the practical explanations are fallacious, and he shows that the highest carbon duty is given by the fuel which withdraws the most oxygen from the blast in a given space of time. In other words, the carbon duty of a fuel is proportional to its power of combustion in extremely dilute oxygen. He considers, too, that the results with coal and anthracite have been made to approach more nearly to charcoal by the increase of the height and capacity of the stack; by the increase of heat in the blast; and by the increase of the capacity of the hearth.

WASHING MINERALS.—The improvements invented by Mr HEINRICH HEUN II., of Dehrn, Germany, consist in the use of one or more revolving or stationary drums, fitted with worms and beaters in such form that the materials to be washed therein are passed through in one direction, and the water in the opposite direction, in combination with an elevator provided with shoots or buckets for receiving the material from one drum and conveying it to other drums to be further washed, and with water tanks or receptacles for the softening of the material, and for mixture therewith, and for washing the same. The apparatus, together with a suitable framework for its support, may be constructed of timber or metal, or of a combination of both, and worked by any convenient power, and the drums and their worms be furnished with suitable inlet and outlets. The beaters may be in the form of metal rods placed within the worms which may conveniently line the sides of the drum. The elevator may be of the ordinary kind, with buckets or bags fitted to pass by, hold, and convey the material from one or more apertures in the drums.

CHEMICALS, MINERALS, AND METALS.—Messrs. J. Berger Spence and Co. (Dec. 14)—Alum: Loose lump, 6*l.* to 6*l.* 2s. 6d.; ground, 6*l.* 15s.—Arsenic: Best white powdered, 8*l.*—Borax: Refined, English, 36*l.*—Copperas: Green, 52s. 6d.; white, 8*l.* 7s. 6d.—Copper: Sulphate, 18*l.* 5s. to 18*l.* 10s.—Nitrate of Lead, 31*l.* 10s.—Saltpetre: Refined English, 25*l.*—Sulphate of Zinc, 12*l.* 12s. 6d.—Sulphur: Roll, 8*l.* 15s.; flowers, 10*l.* 15s.—Tin crystals, 6d. per lb.—White Lead, 20*l.* 5s.—Barytes: Carbonate, 100s.—Brimstone: Best thirds, 5*l.* 0s. 0d.—China-Clay, 39s.—Oxide of Zinc, 22*l.* 10s.—Talc, 5*l.*—Umber, 70s.—Charcoal: Best stick, 4½d. per bushel; field burnt, 6d.—Globe Steam-Boiler Powder, 16s. per cwt.—Naphtha, 60 per cent., 3s. 6d.

Mining Correspondence.

BRITISH MINES.

ABERDAUNANT.—S. Toy, Dec. 16: We have now cut through the lode at the deep adit cross-cut; it is full 8 ft. wide, but I am sorry to say it is of no value. I think it useless to drive further, as I am of opinion that we shall not discover anything in that direction; operations have, therefore, been suspended for the present.

ABERLLYN.—J. Roberts, Dec. 18: The rise in the back of the deep adit is progressing very favourably. From what we can see of the lode, I believe that it is exactly of the same character as the lode in No. 2 adit, showing that the course of blende continues down. You will remember that when we started this rise I stated that we had not got into the line of the course of blende, but I expected that we should do so by the time we had got up some way. As far as we can yet judge (we have not yet cut through the lode, but the blende appears on the side) my thoughts have been fully realised. The end driving south, on No. 2, is looking well for blende. I expect in a month more that we shall get a communication between this and the deep adit. The winze in No. 1 is looking well for blende. The surface operations have been impeded very much on account of the weather.

BLAEN CAELAN UNITED.—Jonathan Pell, Dec. 18: The cross-cut at the 30, driven north from the engine-shaft, has intersected the heading-wall of the lode; the few holes shot down have disclosed more than 1 ft. of the lode, all saving work, and beautiful looking lead, with a few specs of copper. The heavy frost has stopped work, letting the water in, so that the value of the lode (which I think better than in the winze east from engine-shaft) cannot be valued, as there are many feet of the lode to take down, and in the 30, driving west from the winze coming towards the shaft, the lead is much better on the hanging-wall of the vein or lode. It is quite uncertain how long this frost will last, but the delay is unavoidable. All surface and other work is stopped.

BLUE HILLS.—S. Bennetts, P. Bennetts, Dec. 14: The sinking of the Blue Burrow shaft progresses favourably, and so also does the driving of the 30 east end on the north lode towards this shaft, which at present is worth 12*l.* per fm. The stopes at this level are worth 8*l.* per fathom.

BODIDRIS.—H. Hotchkiss, Dec. 18: The engine-shaft is now down 2 fms. 3 ft. below the 45; there is no change in the character of the lode, nor do I expect any until we are 5 fathoms below this level, when we shall come into the run of ore as seen in the level westward. This we shall reach in a month. I have re-set this shaft to sink to nine men, at 12*l.* per fathom, men to pay all costs. The 45 end east I have set to four men, at 7*l.* 10s. per fathom. The lode here contains a good quantity of blende, and I am daily expecting to meet with a good course of lead ore. The rise in the back of the 60, on Maes-y-pwll lode, is re-set at 6*l.* per fathom; the lode is large, and charged with blende. The sink and stope in the bottom of the 30 is re-set at 6*l.* per fathom; this point has slightly improved for lead and blende.

BWLCH UNITED.—N. Bray, Dec. 13: As stated in my general report, good progress has been made by the shaftmen during the month, and the shaft is now down 8 fms. 1 ft. below the 90; and, provided the weather admits of regular working, I hope the contract to the 100 will be completed in the current month; but I am afraid that the present severe frost will stop our wheel to night, as many others in the neighbourhood are idle. In case the shaftmen are hindered I intend to place them to make trials on the ore ground in the different places in the 60. No alteration in the stopes since general report.

— N. Bray, Dec. 18: The severe frost has stopped our wheels, and I have put the shaftmen to make further trials of the lode in the 60, to the east of No. 1 stope, and I am gratified to inform you that for the extent laid open the lode is equally as good as in No. 1 stope. This must be cheering news to all concerned.

CLEMENTINA.—John Roberts, William Sandoe, Dec. 18: We shall this week finish straightening the engine shaft for fixing the top lift of pumps, and shall then commence casing and dividing it down to the 15 fm. level below adit, and also fixing the lift of 8-in. pumps to that level.

COURT GRANGE.—J. G. Green, Dec. 18: I am glad to inform you that the frost has to a great extent cleared away during the night, and I hope to recommence dressing to morrow. We started the pumping wheel yesterday.

CWMYSTWITH.—Dec. 18: Owing to severe frost, nothing has been done during the past week in Michell's cross cut driving north by rock-drill. In Gill's cross-cut north we have cut through the lode referred to in our last report, which is about 2 ft. wide, composed of lead, blende, and spar, and well defined, carrying a branch of blende 5 in, wide, but not sufficient lead to value. We are continuing this cross-cut further north to intersect the new lode, which we consider is still to the north. In No. 2 winze sinking below Gill's upper level, on the new lode, good progress is being made, and the lode is improving in depth—fully 5 ft. wide, with a branch of blende 1 ft. wide, and good saving work for lead. I anticipate an improvement in this winze in depth, as we have a good lode gone down a few fathoms east, and dipping west towards the winze. The 15 cross-cut, north of Pugh's engine-shaft, has been secured and cleared, and will be set to drive by six men on Saturday next. The lode in the two stopes over Michell's level west, on the new lode, is 3 ft. wide, worth 18 cwts. of lead ore per fathom each. In the stope in the back of Gill's upper level the lode is 2 ft. wide, worth 18 cwts. of lead ore per fathom. The lode in the pitch in the back and bottom of the 15, east of Kingside shaft, has very much improved during the past fortnight, and a good lode has gone down under the level, worth 4 tons of lead ore per fathom for the width of the lode—15 ft. This pitch is now idle—under water. The other five pitches are producing an average of 15 cwts. of lead ore per fathom each. All our machinery is idle—locked up with severe frost, without any signs of a change in the weather. The water in Kingside shaft is up to the back of the 15, and has stopped one of our best tribute pitches. As we are likely to have frost for some time we took the present opportunity to change No. 1 crusher, which is completely worn out, and replace it by another of the same size in good condition we have on the mine idle. We hope to complete it by the middle of next week, when we shall be in a good position (when the weather changes) to treat a much larger quantity of stuff.

DE BROKE.—J. Phillips, Dec. 19: We have started one of the pumping-wheels, which keeps the water above the principal stopes, and I hope to start the other this afternoon. The stopes are producing ore in about the usual quantity.

D'ERESBY CONSOLS.—J. Roberts, William Sandoe, Dec. 18: We have no change to report here except that the end driving towards Cobblers' lode is slightly harder, and the vugh is a little more pinched up.

D'ERESBY MOUNTAIN.—J. Roberts, W. Sandoe, Dec. 18: No. 1 is looking much the same as last week, a fine lode of gossan and lead. No. 3 is also without any change to note; the lode is about 2¼ ft. wide, a mixture of lead and blende. We shall push on this rise as fast as possible, so as to communicate with the winze in the No 2, thereby opening up stoping ground. The stopes in No. 4 do not appear quite so orey as they did last week, but vary in quality from time to time We find to-day that the winze from No. 4 to No. 5 is drained of the water, and we shall, therefore, resume driving it at once. No. 5 is progressing just the same as for some time past—from 2 to 3 fms. per week. We expect that we shall finish clearing up the valley shaft in a few days. We have met with some very good stones of lead in the debris, and also in some bits of lode that the old workers left to stand. The severity of the weather has checked our dressing operations, but everything is in preparation for starting, and keeping the machinery running as soon as the weather changes.

DEVON GREAT CONSOLS.—I. Richards, Dec. 20: Wheal Emma: New Shaft, New South Lode: In the new shaft below the 190 the lode 2 ft. on the north side being carried is composed of capel, quartz, peach, and a small quantity of both copper ore and mundic. In the 190 east the lode, 4 ft. of which is being carried, is composed of very fine capel, quartz, peach, prian, and copper ore, worth 4 tons, or 12*l.*, and 7 tons of mundic per fathom, and promises improvement. In the 190 west the lode is 6 ft. wide, composed of capel and quartz, with some saving work of copper ore, and 5 tons mundic per fathom. In Floyd's winze in the bottom of the 175 east the lode, 4½ ft. of which is being carried, is worth for length of winze (9 ft.) 7 tons of copper ore, or 20*l.*, and 7 tons of mundic per fathom. In the 175 west the lode is 3 ft. wide, and worth 2 tons of copper ore, or 6*l.*, and 3 tons of mundic per fathom. In Hockaday's winze the lode, 4 ft. of which is being carried, is worth for length of winze (9 ft.) 4 tons of copper ore, or 12*l.*, and 6 tons of mundic per fathom. There is no alteration of importance to notice at any of the other points of operation throughout the mines since my last report.

EAST DARREN.—Dec. 18: The cross-cut south at the 92 east has been driven during the past month 3 fms. through stiff ground for progress; the ground in the present end is composed of clay-slate and carbonate of lime, and also spots of lead ore. The 80, east of cross cut, has been driven 2 fms. 3 ft. in a lode 3 ft. wide, soft and unproductive; this point is now suspended, and the men placed to drive a cross cut south at the 104, opposite Taylor's shaft, which is already driven 6 fms., for the purpose of intersecting the south lode. The 80 west of cross-cut south, on No. 2 branch, has been driven 2 fms. 2 ft. in a large lode; at present disordered and unproductive. The 80 west of cross cut, on south lode, has been driven 2 fms. 1 ft,, in a lode 3 ft. wide, much improved, now yielding 1½ ton of lead ore per fathom. The tribute pitches throughout the mine are without change to notice. The stopes over the 80 east of cross-cut, on south lode, are not looking quite so well, being disordered in the western end by a soft flat, which we hope will prove only temporary. At surface the drawing and dressing are at a standstill through severe frost and snow, and hope soon to see a change that we may resume dressing of ore to complete our next sampling.

EAST VAN.—W. Wi liams, Dec. 19: We are pushing on the cross cut north for the north lode, in the 25, with full dispatch. We have crossed already 15 fathoms. We have crossed 2 fathoms in the lode at the end of the 70 west. The lode in the end of the cross-cut is poor.

EAST WHEAL LOVELL.—Richard Quentrall, Dec. 18: Since my last report we have been taking down ground and hanging tackle at the 12 on the south lode. In cutting the winze plat we find the lode to be 8 ft. wide. This has interfered a little with our working in the shaft, but we are now in full course of sinking, and the lode in the bottom of the shaft contains more tin than at any shallower point. The north lode in the 12 east is at present a little smaller than it has been. In the 12 fm. level west there is a promising lode 18 in. wide, containing a little tin.

GAWTON COPPER.—George Rowe, George Rowe, jun., Dec. 14: There is no change in the appearance of the ground in the drivage of the 117 cross cut south during the past week, except an additional increas of water as we get nearer the south or main part of the lode, which is very near, so that we can hear the men above working very plain. The lode in the winze coming down from the 105 is producing mundic and ore to the value of 10*l.* per fathom. The tribute department is without change.

GOGINAN.—Dec. 18: There is no change of moment in the underground department since our last report. At surface all the wheels and dressing, &c., are at a standstill, owing to the very severe weather which we have had now over a week; but this morning a thaw has set in, which we hope will continue, and we shall endeavour to get the water home as soon as possible to start the pumping, and drawing will be resumed immediately the frost has gone. We have been availing ourselves of the opportunity to repair our crushing wheels, elevators, &c. There has not been such severe frost here for many years past, and owing to this we were unable to sample more than 25 tons of ore yesterday.

GREAT D'ERESBY.—Wm. Bennetts, Dec. 18: In costeaning we have broken some nice lead for the back of two lodes. I would now recommend commencing the cross cut adit down in the valley, near the valley sett. In driving this cross-cut adit would intersect the blende lode that has been, and still is, spoken of so highly in the D'Eresby Mountain Mine; when this lode is intersected we can drive north and south on the course of the lode, which would also intersect the east and west lodes.

GREAT LAXEY.—F. Reddicliffe, Dec. 17: A week ago we placed eight men to cut the necessary ground and open the width of the shaft (Welsh) in the 247 fathom level, preparatory to commencing to sink below that level. The job will be completed in about a week, and sinking then commenced. The 235 end north has a little improved—present value, 60*l.* per fathom, and every prospect of further improvement. The 220 end north has opened into a vugh 2 fms. long, and through this vugh a communication has been made with the winze sunk from the 210. The present value of the end is 30*l.* per fathom. There is no other change to notice in this part of the mine.—Dumbell's: We have also resumed the sinking of this shaft, but find that the ground is not yet quite drained of all the water. The sinking will be a little slower on this account, until the drainage is completely effected, which may be at any time. The 215 north has lately been passing through a short nip, with the lode small and poor, but it is again 4 ft. wide, and worth 18*l.* per fathom. There is no change or improvement in any of the other ends until we come to the 110; but here the lode is nearly 4 ft. wide, and improved to 12*l.* per fathom. The end driving south of rise, over this level, south of shaft, has been pretty poor for about the last 3 fms. or so, but there is some indication of its again improving. There is so little change in any other part of the mine, or in the stopes, that it need not be mentioned.

HINGSTON DOWN.—T. Richards, Dec. 19: Bailey's Shaft: In the 172 east the lode continues to produce 4 tons of ore or 8*l.* per fathom, and is of great promise. In the 172 west the lode is very large, containing capel, quartz, and mundic, with occasional good stones of copper ore. In the stope in the back of the 172 east the lode is worth 7 tons of ore or 20*l.* per fathom. In the 160, west of Nicholl's winze, and in the tributers sunk in the bottom of the 160, there is no material change. In the tributers' stope and pitch in the back of the 110 the lode is worth 4 tons of ore or 6*l.* per fathom. Fair progress is still being made in driving the deep adit.

LADYWELL.—A. Waters, Dec. 19: The new south shaft is 4¼ fms. below the 16 fm. level, is going down on a sparry lode 3 ft. wide, yielding stones of ore. The 16 south is at present in a lode 1 ft. wide, worth 10 to 15 cwts. of lead ore per fathom. The winze below this level behind the end shows a rib of ore 2 or 3 in. wide, worth 1 ton per fathom. The 32 south-west, on New Britain lode, towards footwall of main lode, is letting out a good quantity of water. No other change in the mine to notice.

LEAD ERA.—J. A. Ede, Dec. 17: During the present week we have been subject to severe snow storms, attended by hard frost, compelling us to suspend building for the present. The adit is being rapidly extended into the mountain to intersect the east and west lodes in junction with the flats. The lode continues to open out and improve as we proceed, ensuring a speedy and effectual development of the property. At No. 2 trial shaft we have come across a furrow in the heading wall of the flat; and it is worthy of remark that the ore found at East Pant-du, Pant du, Gribiolyee, and other mines was found in furrows of this nature. Few mines have been appreciated even as this has down in Wales. Whatever our future may prove, all practical persons who have been on the mine are unanimous as to the intrinsic value of the property. I received this morning an assurance of further extension of land being granted for this property in the direction of the lodes.

LEADHILLS.—Arthur Waters, Dec. 19: Brow Vein: Gripp's adit to drive north of Glengonar shaft, by six men, at 4*l.* per fathom and 10s. per ton, the former price having been 4*l.* 10s. per fathom; the lode in this end is worth 1½ ton per fathom. We are now beyond the valley, and the end is now entering the hill ground north of the high road. Pitch in back of this level, south of shaft, by two men, at 4*l.* 15s. per ton. No. 2 pitch, by two men, at 4*l.* 15s. per ton. Pitch in back of this level, north of shaft, by three men, at 4*l.* 10s. per ton. Stope in back of 20 north, by four men, at 1*l.* 15s. per fathom and 10s. per ton, lode worth 25 cwts. per ton; previous price 45s. per fathom. Pitch in back of 40 south, by three men, at 95s. per ton. Pitch in back of the 60 south, at 90s. per ton.—Muir's Cross-Cut: Gripp's adit to drive west, towards side lodes, by four men, at 120s. per fathom, former price 140s. per fathom.—Dobie's Vein: Pitch below Gripp's, on said lode, by four men, at 90s. per ton, lode worth 1½ ton per fathom. This is new ground, and the lode bids fair to open out well for the company.—George's Roust Vein: Gripp's adit to drive north, on said lode, by two men, at 25s. per fathom and 10s. per ton, previous price 70s. per fathom. This is a strong good-looking lode, and I should not be surprised to hear of a discovery on it any day.—Brown's Vein: The 70 to drive south of Jeffrey's shaft, by six men, at 120s. per fathom—a good-looking vein, yielding stones of lead ore. Drift north of Newbigging's sump, 8 fathoms below the 55, by four men, at 90s. per fathom and 10s. per ton, worth 2½ tons per fathom, former price 95s. per fathom. No. 1 stope in back of 55 south, by four men, at 45s. per fathom and 10s. per ton, worth 3½ tons per fathom, former price 50s. per fathom. No. 2 stope, south of ditto, by four men, at 55s. per fathom and 10s. per ton, lode worth 1¾ ton per fathom, former price 60s. per fathom. No. 3 stope, south of ditto, by two men, at 60s. per fathom and 20s. per ton, worth 1¼ ton per fathom, former price 65s. per fathom. Pitch in the back of the 55 north, by two men, at 95s. per ton. Pitch in bottom of 30 south, by two men, at 95s. per ton. Pitch in back of 20 north, by two men, at 95s. per ton. Gripp's adit, south of Jeffrey's shaft, by two men, at 90s per fathom and 10s. per ton, former price 100s. per fathom. There is a good-looking lode here, and in about 10 fathoms further driving we expect to reach the point where Brown's lode is in junction with Dobie's vein, and where it is said a good lode was left by the old men. It is also stated that a shaft from surface has been sunk nearly to the depth of Gripp's adit on the said junction. The winze below this level, behind the end, by four men, at 100s. per fathom and 10s. per ton; the lode is worth 1¾ ton per fathom. A pitch in back of this level south, by four men, at 85s. per ton.—Raik Vein: Stope in the 20, south of Brown's sump, by eight men, at 30s. per fathom and 10s. per ton; worth ¾ ton per fathom. Stope in back of the 10 fm. level, north of No. 2 sump, by four men, at 15s. per fathom and 10s. per ton; 2 tons per fathom, former price 20s. per fathom. Stope in back of the 10, north of No. 1 sump, by four men, at 15s. per fathom and 10s. per ton; worth 2¼ tons per fathom, former price 20s. per fathom. Gripp's adit, south of Reid's shaft, by four men, at 30s. per fathom and 10s. per ton; lode yielding stones of ore, former price 55s. per fathom. Pitch in back of Gripp's, north of Jeffry's cross-cut, by four men, at 95s. per ton. Pitch below ditto, by four men, at 95s. per ton. Pitch south of trial shaft, by dressing-floors, by two men, at 95s. per ton. Watson's shaft below surface (now down 62 fms.), by six men, at 14*l.* per fathom. We hope the shaft will be deep enough to drive from it on a level with Gripp's adit by the end of this month.—Jeffrey's Vein: Gripp's adit to drive north-west, by four men, at 80s. per fathom and 10s. per ton, former price 90s. per fathom; strong vein, but without ore. Pitch in back of this level north-west, by four men, at 20s. per ton; worth 5 tons per fathom, former price 30s. per fathom and 20s. per ton. New winze below Gripp's, west of junction of Raik vein, by four men, at 60*l.* per fathom and 10s. per ton.—Mill Vein: Pitch in back of Gripp's, south of Marr's shaft, by three men, at 95s. per ton.—Carse Vein: Pitch below Gripp's, south of Moss shaft, by three men, at 95s. per ton. Gripp's adit north, on Brow vein, Gripp's adit north on George's Roust vein, and Gripp's adit north-west, on Jeffry's vein, are all three likely to lead to important discoveries we think shortly. The weather here is very severe. You will see by the list sent direct from the mine that a further reduction has been made in the wages of the workpeople.

MARKE VALLEY.—W. George, J. Stanlake, Dec. 13: Setting Report: To drive the 90 west, on Rosedown lode, by six men, 10 fms. stent, at 9*l.* per fm.; in taking down the lode during the past week we find it is not quite so large as previously reported, now 1½ ft. wide, composed principally of quartz, with mundic and some good copper ore. From the above it will be seen the ground has improved, and we now hope to make better progress in driving than we have hitherto been able; and although we have not yet met with anything to value, we still have every confidence that good results will follow the continuance of this drivage into the western ground. To stope south part of Rosedown lode below the 80, by six men, at 8*l.*, which yields 5 tons of ore per fathom. To strip down the north side of lode standing between the 60 and 70, by four men, which yields 3½ tons of ore per fathom. To stope back of 60, by two men, at 3*l.*, yielding 2 tons of ore per fm. To stope back of 80, by four men, at 3*l.* 5s., yielding 3½ tons of ore per fathom. Three stopes in back of 40, by four men in each, at 2*l.* 5s., 2*l.* 5s., and 3*l.*, yielding 3½, 4, and 3 tons of ore per fathom respectively. To rise in back of 30, by four men, at 7*l.*, yielding 1½ ton of ore per fathom. To rise in back of 20, on south part of Rosedown lode, by four men, at 5*l.* 10s., which yields 2 tons of ore per fathom. We have set another rise in the back of the 20 further west to prove a piece of ground, by two men, at 5*l.* Here the lode is very promising, and we expect by rising a short distance to get an improvement. Two stopes in the back of the 20, No. 1 by four men, as per bargain set last month at 3*l.* 10s.; yielding 4 tons of ore per fathom. No. 2 by two men, at 3*l.*; yielding 3 tons of ore per fathom. To drive the 10 west, by four men, at 6*l.* per fathom, and a tribute of 5s. in 1*l.*; lode 2 ft. wide, yielding 2½ tons of ore per fathom. To continue the rise in the back of this level, by four men, at 6*l.*; yielding 1¼ ton of ore per fathom. To stope the back, by two men, at 3*l.* 5s.; yielding 2 tons of ore per fathom. We have also let the following tribute pitches:—Three in bottom of the 60, by two men in each, at 12s., 13s. 4d., and 13s. 4d. in 1*l.*; one in back of 50, by two men, at 11s. 6d.; one in back of 30, by two men, at 13s. 4d.; one in bottom of the 20, by two men, at 10s. 6d.; one in back of the 20, by two men, at 13s. 4d.; one in bottom of the 10, by two men, at 13s. 4d.; two in the back of the 10, two men in each, at 12s. each.

MEDLYN MOOR.—J. Prisk, Dec. 19: North Lode: The 20, west of shaft, is a little disordered for the present by some small cross branches, but its course is not altered, and in a day or so we hope it will be again productive. In the 20 east every effort is being made to drive through the large cross-course as fast as possible, and see the lode to the east of it, which is a point we look forward to with great interest. When your last meeting was held we did not think this cross-course would have been met with so early, or that it would prove so large and detrimental to the working of the mine. It is composed principally of hard quartz, and is letting out a large stream of water, which makes it exceedingly troublesome for working; its size is almost unparalleled. We have already driven into it 5 fms., and are not yet through it, but we consider to-day we are getting into more settled ground, and that the lode will soon be met with. We have had great difficulties to contend with here, especially as the ground joining the cross-course was very soft, and the water pressing against us so heavily that the most strenuous efforts had to be made by the men and ourselves for several days in order to keep the level open. We are pleased to say the water is now draining from the backs a little, and next month, if all goes well, we hope to be able to work them. We did hope and expect that we should have been able to do so without hindrance, but the season proving so wet and the mine shallow has been against us. Puffer shaft was sunk at the commencement of the mine to the 10 by a small portable engine, and had to be abandoned on account of the water. To facilitate the draining of the backs we have borrowed a lift of pumps for the present, and set to work here, which is draining the upper part of the lode nicely, and has enabled us to open an end west of said shaft, on the course of the lode, which is worth 12*l.* per fathom. This will assist us in our returns, and as soon as possible we shall have some additional hands here, which will enable us to keep the stamps working daily on good tinstuff. No dressing has been carried on for the last ten days, on account of the severe frost but to-day the weather is better.

MELLANEAR COPPER.—John Gilbert, Dec. 13: The lode in the 30, west of Gundry's shaft, is 3 ft. wide, and worth 1 ton of copper ore per fathom. The lode in the 40, west of shaft, is 2 ft. wide, and worth ½ ton of ore per fathom. The lode in the rise in the back of this level is 4 ft. wide, and worth 3 tons of ore per fathom. The lode in the 50, west of shaft, is 4 ft. wide, and worth 2 tons of ore per fathom. The lode in the 60, west of shaft, is 4 ft. wide, and worth 2 tons of ore per fathom. The winze in the bottom of this level is worth 2 tons of ore per fathom. The lode in the 70, west of shaft, is 6 ft. wide, and worth 4 tons of ore per fathom. The rise in the back of this level, to communicate with the winze in the bottom of the 60, is worth 3 tons of ore per fathom. The lode in the 80, west of shaft, is 5 ft. wide, and worth 3 tons of ore per fathom. The lode in the 90, west of shaft, is 4 ft. wide, producing some saving work for copper ore. The lode in the winze in the bottom of this level, east of shaft, is 4 ft. wide, and worth 2¼ tons of ore per fathom. The lode in the 100, west of shaft, is 6 ft. wide, producing good stones of ore, but not sufficient to value. The lode in the 100, east of shaft, is 4 ft. wide, and worth 2 tons of ore per fathom. The lode in the 100, west of skip-shaft, is 5 ft. wide, and worth 2 tons of ore per fathom; is a very promising looking lode, but very wet, and the water is still increasing as it is getting nearer the cross-course. There is no change to notice in any of our other bargains since last reported. We sampled yesterday (computed) 570 tons of copper ore.

MINERAL CORPORATION OF GREAT BRITAIN (HAFNA MINE).—W. Bennetts, Dec. 18: No. 1 adit end is looking much more promising to-day than it has for some time past. The sulphur-mundic that I mentioned in my last report is giving place to lead ore, as I expected. The two stopes in the back of No. 1 adit are worth 15 cwts. of lead to the fathom.—No. 2 Adit: The part of the lode that we are driving on is 4 ft. wide—a very promising looking lode; I expect to see a good improvement in this end shortly. There is no change to notice in the cross-cut of No. 3 since last week's report. In No. 4 adit level the lode, as I expected, has very much improved in the past day or so, and by the kindly appearance of the lode in the end to-day I expect to see a good lode of lead in this end shortly. At surface we have not been able to do any work on the dressing-floors for the past week. The weather has been, and is, so severe that everything is frozen up.

MONYDD GORDDU.—James G. Green, Dec. 18: I am glad to inform you that there is a change in the weather, and we are now busy clearing away the ice with a view of recommencing the dressing to morrow. Underground operations have been carried on without hindrance during the past week. The 84 end is in a kindly lode, carrying a small string of lead, and looking promising for a good course of ore. The winze sinking below the 24 west is worth 15 cwts. of lead per fathom. No other change to notice.

MORFA DU.—F. Mitchell, Dec. 18: We have holed the piece of ground referred to in my last report between the adit and the 36. This place is now well ventilated, and we shall at once commence raising good bluestone at this point; we have put on four more hands for this purpose. The bottom end men will now return to the bottom level, where we shall also be getting good ore. The 36 end, driving north of west from old level, is still in the hard limespar. We calculate on having about 2 fms. more to drive in this direction to cut the run of ore ground seen in the bottom level. We have not been raising much ore for the last fortnight, but we hope now to make regular returns. We hope to finish loading the vessel with 160 tons of bluestone about the latter end of the week.

NORTH TRESKERBY.—M. George, Dec. 18: We are making good progress in sinking Doctor's engine shaft below the 24, where the lode is 4 ft. wide, and worth about 1 ton of ore per fathom. The lode in the 24, driving west of Doctors' engine-shaft, is 4¼ fe. wide, and yielding capital stones of ore. The lode in the 24, driving east of Doctors' engine-shaft, has been squeezed, but looks better in the end. The lode in the 12, driving east of Doctors' engine-shaft, is 4 ft. wide, and worth 1 ton of ore per fathom. We have suspended the 12, west of the cross-course, for the present, and are now rising in the back, where the lode is 2 ft. wide, and worth 2 tons of ore per fathom. The lode in the winze sinking below this level is 5 ft. wide, and yields 2 tons of ore per fathom; here we are leaving good ground each end of the winze as we sink for stoping. The tribute department is rather improved.

PARYS MOUNTAIN.—T. Mitchell, Dec. 18: The 90 south is getting intermixed throughout with sulphur, mundic, and peach, accompanied with small strings of copper ore. The ground has undergone a great change lately, and our prospects in this direction are getting to look more hopeful. Good progress continues to be made in the driving.

PENHALLS.—S. Bennetts, P. Vian, Dec. 14: The lode in the 70 east end is worth 6*l.* per fathom. In the 60 east end it is worth 7*l.* per fathom. In the 55 east 5*l.* per fathom; and in the 48 west 6*l.* per fathom. There is no change worthy of special notice in any other part of the mine.

ROMAN GRAVELS.—A. Waters, Dec. 19: The new south engine-shaft is being sunk below the 110 with fair speed; present depth about 5 fms.; rock of congenial character. The ends and stopes are without material change to notice since my last report. The mine altogether is, I consider, looking very well. The weather is very severe, but with warm water we can keep moving in the dressing department.

ROOKHOPE.—Thomas Davidson, Dec. 19: In presenting my report this week I am sorry to say that the adit level has been poorer for two or three days, but is looking rather better again, and its present value may be estimated from 12 cwts. to 14 cwts. per fathom; the ground is very hard. Cutting into south side of vein in the 15, in No. 2 east of Low shaft, a fine looking vein, containing spots of ore, but not sufficient to value yet. We have got the tramway completed in the 25, and are now cutting into the north side of the vein; value from 6 to 8 cwts. per fathom. In driving west from winze, 5 fms. below the 25, No. 7 east of Gin shaft, ground very hard and holey, value 10 cwts. per fathom. Stoping from old winze, No. 7 east af Low shaft, very poor at present, and shall remove these men to some other place. Stoping south side of vein, west from same winze, in No. 2 and 3 on section, east of Low shaft, value 10 cwts. per fathom. Stoping west from Low shaft bottom, random of 42 level, in south part of vein, value 8 cwts. per fathom. We got very little done on the dressing-floors in consequence of the severe weather, there being a considerable depth of snow on the ground, accompanied with extreme hard frosts, but we are doing the best we can under the circumstances.

SOUTH CAMBRIAN.—Absalom Francis, Dec. 16: We are stripping down the north part of the lode towards and behind the forebreast, which is yielding very rich blende ore, and looking better than any portion yet opened on, and the character and composition of the lode are such as to lead to the conclusion that as depth is attained the blende will give way to lead ore.

SOUTH CONDURROW.—W. Rich, W. Williams, H. Abrahams, Dec. 17: The lode in the 30 east is worth 10*l.* per fm. A rise in the back of this level is worth 12*l.* per fathom. The 40 east is worth 5*l.* per fathom. The 40 west yields stones of tin. The rise in the 50 east, of Plantation shaft, is worth 30*l.* per fathom. The 30, west of ditto, yields a little tin. The 70 end west is worth 10*l.* per fathom. There is very little alteration to notice in any other part of the mine. The frost is sadly against our stamping and tin dressing operations.

SOUTH DE ERESBY MOUNTAIN.—William Bennetts, Thomas Bennetts, Dec. 19: The water is down in the shaft 17 ft. There is nothing new in the cross-cut since last report. The men have finished cutting down the ground in the shaft in order to fix the pumps and rods. Some of the men are clearing up the old workings in the bottom of No. 1 adit. The lode in the end of No. 2 adit is now looking more promising for lead than it has done for some time past; there are some good spots of lead all over the end. This lode cannot in our opinion fail to make a good branch of lead at deeper levels.

SOUTH MOLTON CONSOLS.—T. Harris, T. May, Dec. 14: We have to-day re-set the adit level to drive east towards the lead lode, by six men, at 7*l.* 10s. per fathom the month; the ground continues of much the same character as for some time past, it being of limestone, slate, and killas, of a favourable colour for lead—the ground is also letting out a little water.

SOUTH ROMAN GRAVELS.—John W. Powning, Dec. 19: The lode in the winze, sinking below the deep adit level on Sawpit vein, is much the same as reported last week. I have to-day sent samples of carbonate of barytes. We have several tons raised, which could soon be made marketable.

SOUTH TOLCARNE.—William Rich, James Knotwell, Dec. 17: The lode in the rise in the back of the 36 end east is composed of fine gossan and some red oxide of copper; the lode is worth 10*l.* per fathom. The lode in the 24, west of cross-course, is small and unproductive. We intend to resume driving the 36 end east forthwith, and to keep on the rise at the same time.

ST. PATRICK.—Wm. Francis, Dec. 18: We have nothing particularly to notice since last week. The appearances in the cross course are most favourable, composed of clay mixed with fine gossan, and a little spar amongst the boulders, and a good heading wall. The 60 yard cross-cut in the chert is a little tighter, but the colour of the chert is somewhat lighter, and I am expecting a favourable change.

TANKERVILLE.—Arthur Waters, Dec. 19: Watson's engine shaft is 5¼ fms. below the 206. The 206 west is driven 10 fms. 4 ft.; the lode is 12 in. wide, yielding stones of lead ore. When the end gets away from this twitch it is likely that a good bunch of ore will be met with. The 206 is driven east 19 fms. 4 ft.; the lode in the present end is worth 1¼ ton per fathom, and letting out a lot of water. This end is just entering a rich bunch of ore. The three stopes in back of the 206, east of cross-cut, are worth together 5½ tons per fathom. The four stopes in back of the 206, west of winze, are worth together about 6 tons per fathom. The winze in bottom of the 192 west is worth 1½ ton per fathom. The stope in back of this level is worth 1 ton per fathom. The stope in the bottom of the 82 east is worth 2 tons per fathom. There are 13 tribute pitches at work by 27 men, at prices varying from 4*l.* 10s. to 5*l.* 10s. per ton of dressed ore. The frost has been so severe this week that we have not been able to send off the ore. We weighed stuff into wagons, but could not get it out again. There are now signs of a thaw.

TAN-YR-ALLT.—John Davis, Dec. 19: We have shipped Messrs. Neville, Druce, and Company to-day 6¼ tons. We could have made it 10 tons had not the frost prevented our attempting to dress the slimes. The stope in the 12 fm. level has improved in both length and productiveness. The stope in the 22 continues the same. We have not resumed work on the best stope yet.

TEMPLE.—Dec. 18: No lode has been taken down in either No. 2 or No. 3 level this week. In No. 1 the lode continues to improve, but is not yet sufficiently productive to value. The weather has been very unfavourable for surface operations, but is now improving, and progress is being made with the automatic dressing machinery.

VAUGHAN.—Dec. 18: In the deep level cross-cut south the lode is improving in appearance, being composed of light clay-slate and spar. In the 30, west of cross-cut, the lode is large, and much improved, now yielding 1¼ ton of lead ore per fathom. In the winze sinking under the 30 the lode is large, yielding from 17 to 18 cwts. of lead ore per fathom. Owing to severe frost and snow, the drawing and dressing is at a standstill.

WEST CWMYSTWITH.—J. Davis, Dec. 14: At the south workings there are this month seven men stoping in and about the winze, and overhead the same; the overhead pitch is not quite equal in value to what it has been, the ea-tern end of the stope having fallen off; the lode about the winze is of the same value as before reported; the value for lead ore being about 15 cwts. per cubic fathom. The cross-cut north has been extended in all 29 fms. from No. 2 lode; it would be required to be extended another 10 fms. to come under perpendicular of Fleming shafte good progress is being made, and the prospects continue very favourable. The eastern drivage is getting into harder ground, and the ore becomes more continuous as it extends under deeper cover. The western end has not touched the lode since last report, but I intend after another fathom is driven to tap the lode to prove its value at this point, but we shall continue the level straight, as marked on tracing. The frost has entirely shut up our dressing operations for the present. There are 3 to 4 tons of ore now out dressed and partly so. Owing to the lead ore being so mixed up with other minerals, sulphur and blende principally, we have to crush an immense quantity of stuff to get a ton of clean ore. As I have remarked before, and as you will see from samples, the Penshafte has the advantage of being freer from these baser metals.

WEST GODOLPHIN.—John Pope, Dec. 18: Weekly Report: Wilson's Lode: In the 80 driving west we are carrying a part of the lode about 4 ft. wide, which is worth about 6*l.* per fathom; this remark will apply also to the lode in the 80 driving east. We have six men blasting down the sides of these levels, which are producing average quality tinstuff. The lode in the 70 driving west is still in branches, and not of much value; this is caused I think by the influence of the flookan course, which we are expecting to cut every foot we drive. No. 1 stope in the bottom of the 70 west is 10 ft. wide, worth 15*l.* per fathom. No. 2 stope is 7 ft. the bottom of the 70 west is 7 ft. wide, worth 10*l.* per fathom. No. 3 stope is 18 in. wide, worth 8*l.* per fathom. The lode in the 70 driving east is 18 in. wide, price tinstuff.—Caunter Lode: In the 70 driving south the lode is 15 in. wide, worth 3*l.* per fathom. The other places are just as last reported. We have not been able to cart any tinstuff to stamps since the frost and snow set in, but I am glad to say the weather is changed to-day. We are getting heavy showers of rain, and the frost and snow is disappearing very rapidly. As soon as we can work the carts we shall send all the stamps going at full speed, and work them night

and day, as we have a large pile of tinstuff on the floors at surface. Wilson's pumping-engine is going about 4½ strokes per minute.

WEST TANKERVILLE.—A. Waters, Dec. 19: The lode in the 86 fm. level, south of shaft, is 5 to 6 ft. wide, yielding stones of lead ore, but at present not to value. There is every sign, however, of an early improvement in this end. The stope in back of this level, south of shaft, is worth 1¼ ton per fathom. There are eight tribute pitches at work, by 18 men, at an average price of 4l. 18s. 9d. per ton of dressed ore. Weather permitting, we shall sample 20 tons of lead ore next week.

WEST WHEAL TOLGUS.—Dec. 18: Taylor's Shaft: There is no alteration in the ground worthy of notice. We calculate on completing the sink of 12 fms. and getting everything in readiness to commence driving the 155 by next setting day. The lode in the 145 end west is large (5 ft. wide), but not so orey as it was last week, now yielding 2 tons of good ore per fathom. We have not taken down any of the lode in the 145, east of 145 end east of No. 1 cross-cut, and east of the great cross course. The ground is better for driving in, so we shall drive on a little further before taking down the lode. The stopes in the back of the 145 are yielding quite up to last report. The lode in the 135 end west is 4 ft. wide—a strong kindly lode, but rather spare for driving, and yielding 3 tons of ore per fathom. The winze under this level, west of the great cross course, is yielding 5 tons of ore per fathom; this is holding on well. The stopes, both in the back and bottom of this level, are yielding quite up to last report.—Richards's Shaft: The ground in the 105 cross-cut is just the same as it has been—light, kindly killas. We expect to reach the lode next week. There is no alteration in the 65 end west; lode small, and ground spare for driving. As stated in our last letter, we only sampled 222 tons; but for the severe weather we should have had another little parcel of 40 tons, making a total of 262 tons. We have the ore on the floors, but as it is the first sampling for the two months we considered it the better way to leave it until next time.

WHEAL UNY.—William Rich, Matthew Rogers, Dec. 14: One of the pumps at Hind's shaft burst, and being in one of the long plunger lifts made it the more difficult to replace with a new one. We have, however, taken out the defective pump and the engine again set to work, but it has delayed the operations in the bottom of the mine for a few days. The weather, too, is unusually severe, and the ground covered with snow, which has brought most of our surface work to a standstill.

WHEAL CREBOR.—John Andrews, Dec. 17: In the 120 east we are driving by the side of the lode. The lode in No. 1 stope in back of the 120 is 4 ft. wide, worth 8l. per fathom. The lode in No. 2 stope in back of the same level is 2 ft. wide, worth 6l. per fathom. In the 108 east no lode has been taken down for the week. The 72 and 48 ends are poor. The lode in the new shaft is 1 ft. wide, yielding good stones of mundic and a little copper ore.

FOREIGN MINES.

ST. JOHN DEL REY MINING COMPANY (Limited).—Advices received Dec. 2, 1878, ex Guadiana (ss.), dated Morro Velho, Nov. 2:—

GOLD EXTRACTED TO DATE.

	Oits.		Tons.	Oits. per ton.
General mineral	8,863·0	from	1376 =	6·441
ditto Praia	1,083·5	,,	258 =	4·200
Mineral free from killas	3,134·5	,,	364 =	8·611
	13,081·0	,,	1998 =	6·549
Retreatment	482·0	,,	— =	·240
Total	13,563·0	.....	1998 =	6·788

Advices received Dec. 16, 1878, ex Neva (s.), dated Morro Velho, Nov. 18:—

GENERAL OPERATIONS.—Owing to several heavy showers of rain of short duration towards the latter end of the month, the return of gold and the output of mineral is slightly more favourable than that for September. The present supply of water, however, is still limited, and far short of the quantity required for the full and effective working of the mine and reduction machinery.

GOLD PRODUCE FOR THE MONTH OF OCTOBER.—The gold extracted during the above period amounts to 34,979·1 oits.=4032·5 ozs. troy. It has been derived as follows:—

	Oits.		Tons.	Oits. per ton.
General mineral	22,278 5	from	3664 =	6·080
ditto Praia	3,187 9	,,	668 =	4·772
Mineral free from killas	8,190·5	,,	985 =	8·315
	33,656 9	,,	5317 =	6·330
Retreatment	1,322·2	,,	— =	·249
Total	34,979·1	,,	5317 =	6·579

REDUCTION DEPARTMENT.—The above produce is the result of thirty days extraction, one day being carried forward to November for convenience of cleaning up the last division. Compared with that for the past month the return is higher by 4367 oits.; there is also an improvement of 0·788 oits. in the standard yield per ton of mineral, and in that freed from killas of 0·638 oits. Throughout the several stages of treatment there has been a higher separation of the gold contents, the mean loss for the month being 2·148 oits. per ton, the best recovery of gold since the altered computation of the mineral weight. Within the month several important alterations and repair work have been made in the department, the eastern dressing floor of Herring stamps has been entirely remodelled, with the view to increased area for straking. By the old method the quantity of mineral and passing over the strakes was 1·2 ton in 24 hours; by the present system only 0·64 ton, or about one-half less. The result of a long series of experiments clearly shows that the former loss of gold has been principally due to the limited straking space and the density of the stamped sand.

COST AND PROFIT.

Produce for October	34,979·1 oits.	
Less loss on melting	265·1 ,,	
	34,714·0 at 7s. 9d. per oit. =	£13,451 13 6
Cost		7,684 7 4½
Profit		£ 5,767 6 1½

Included in cost are part charges of many of the new mechanical appliances lately introduced in the mine and reduction works, as well as the expenses incurred by the late addition of force to the mine and mechanics departments.

MINE.

Mineral raised from the mine	6484 wagons.
,, quarried per borer per diem	2·21 ,,
Average number of borers daily	108·30
,, ,, ,, natives ,,	189·52

SUMP AND STOPES 278 A AND D, AND 277 B.—From the sump the extraction of good mineral has been limited, as previously explained in the report for September. The above sections have yielded the usual supply, without any change in their general condition.

WESTERN SECTIONS continue as previously reported, the quality and extent of pure and mixed mineral in sections 255 A and D, and 234 B being quite as favourable as at any former period. The principal output has been from 234 B, where an increased extraction is called for, the present position of the two stopes being ill adapted for the required discharge of all the western mineral through B shaft. The western level has been temporarily suspended pending the deepening of 234 stope.

B SHAFT.—Sinking rate, 13 ft. 5 in.; total depth, 18 fms. Every possible effort is being used to effect a communication with 255 D. Total length of the cross-cut to B shaft, 5 fms. 1 ft.

GOLD EXTRACTED TO DATE.—The produce for the first division of November, a period of 12 days, amounts to 12,827·6 oits., equal to 1478·8134 ozs. troy. It has been derived as follows:—

	Oits.		Tons.	Oits. per ton.
General mineral	7,573·0	from	1451 =	5·219
ditto Praia	1,276·0	,,	244 =	5·299
Mineral free from killas	3,333·0	,,	370 =	9·008
	12,182·0	,,	2065 =	5·900
Retreatment	645·6	,,	— =	·312
Total	12,827·6	,,	2065 =	6·212

Some alteration as to the date of the dispatch of the company's gold troop being found necessary the first division of the month has been changed to 11 days; in the above division, however, the last day of October is included.

THE CALIFORNIAN PAN AMALGAMATOR was successfully started on the 31st ult. From the nature of the experiment it is proposed to make some important data may be looked for as to the merits of direct or concentrated amalgamation. Its action as a grinder appears perfect.

WATER SUPPLY.—Rain in considerable quantities has fallen during the past few days, and the indications at present are such as to lead to the conclusion that the rainy season has at length fairly set in.

MINE.—Return of duty for 13 working days:—

Mineral raised from the mine	3334 wagons.
Mineral quarried per borer per diem	2·56 ,,
Average number of borers daily	101·23
Average number of natives daily	182·15

No change to advise.

TIMBER-WORK.—A special examination has been made of the stulls and collar pieces throughout the mine. At the eastern section the pressure from the south wall at some points appears to have slightly increased. Extra heavy timber has been placed, and may now be said to be well secured.

AN INTERMEDIATE GOLD TROOP, conveying eight boxes containing 24 bars of gold, weighing in all 38,032·4 oits.=4381·0571 ozs. troy, was dispatched for Rio and England on November 16.

N.B.—The gold has duly arrived.

The following telegrams have been received:—

On November 25—"Produce for twelve days (first division of November), 12,750 oitavas; yield, 6·2 oitavas per ton. Profit for the month (October), 5800l. All going on well."

On November 30—"Produce eight days (second division of November) 8750 oitavas; yield, 6·3 oitavas per ton. All going well."

On December 12—"Produce for the month (November), 32,500 oitavas; yield, 6·0 oitavas per ton. All going on well."

DON PEDRO NORTH DEL REY (Gold).—Report for October: Produce from 1870 tons, dry weight, 1701 oits., equal to 722l. 18s. 6d.; cost, including all general expenses, 2247l. 2s. 11d. The cost is somewhat heavier this time, principally owing to carriage of goods, &c., and ironwork for 60 ft. wheel having been charged to the date than the above report, advised 2650 oits. for the month of November.

LONDON AND CALIFORNIA.—The clean-up at the Original Amador Mine for the month of November is estimated at $6000.

SIERRA BUTTES (Gold).—Result of the working at the mines for November: Sierra Buttes Mine: Total receipts, $31,397; total working expenses, $19,122; outlay on improvements, $1500.—Plumas Eureka Mine: Total receipts, $37,365: total working expenses, $18,223; outlay on improvements, $4700.

PLACERVILLE (Gold Quartz).—Telegram from T. Price, Dec. 14: Shaft has reached a depth of 408 ft. Cross-cut has advanced the distance of 8 ft. Mine is looking well.

BLUE TENT.—D. T. Hughes, Nov. 23: We have had a little water the past week from the Fall Creek Lakes Water Company, and made good use of it at South Yuba claim, but has now given out until another storm visits us. Our new Menzies works very satisfactorily; by its use we will be able to use about 600 in more water in the South Yuba claim, and if a good supply of water will favour us through our ditch I am very confident of making a very good showing in bullion through the whole of the coming season.

RICHMOND CONSOLIDATED.—Telegram from the mine at Eureka, Nevada: Two furnaces started; all working well. Refinery starts Thursday.

— R. Rickard, Nov. 27: During the past week exploratory work in the mine has been carried on as usual. The 400 west quartzite drift has been suspended, and a cross cut started from the extreme western end, and has been drifted during the past week 27 ft. in limestone; the object of this cross-cut is to connect with the rise above the 500 a distance of 210 ft. to explore the ground between these two points, and also for ventilation. The drift from rise 80 ft. above the 500 has been advanced 70 ft. in good ore; the rise is up to the level of the 400 ft. level; the present back of rise is in low-grade ore, with occasional bunches of galena. From the No. 2 winze, 18 ft. below the intermediate level, two drifts have been started, one east and the other south; the former has been extended 19 ft. in very fair ore, and the latter 20 ft. in ore matter and limestone. There is no change to report from any other part of the mine since my last. The reconstruction of the smelting works is drawing to completion; in ten days from the present date everything will be ready for work, with the exception of the iron flue, which was only shipped from Pittsburgh last Friday, and cannot be expected here before December 10 or 12. As soon as it arrives it will be put in place.

JAVALI.—The manager (Nov. 5) reports that, owing to the prevalence of fever, less than the usual amount of work had been done at the mine. The mill had driven 28 stamps during 24 days, crushing 1650 tons of quartz, which yielded 430 ozs. of gold, valued at 1125l. The expenditure had been 870l. The rainy season had at last fairly set in, and it was hoped that the health of the district would in consequence, rapidly improve.

MINERAL HILL.—Mr. Plummer, Nov. 27: Mineral Hill: Our prospecting level from the western slope, commenced on the 20th inst., is progressing fairly, and showing low grade ore. It is driven by four men.—Diamond Valley: Our prospecting here is getting on very satisfactorily. Our new shaft, sunk by two men is going down at the rate of 2 ft. 6 in. per day, and showing the same characteristics as when last reported—Iron, lime, and carbonate of lead.

COLORADO UNITED.—The superintendent in his letter of November 23 says—Stope No. 1, on 8th level, has wonderfully improved. Both the stopes on this level are looking well. The breast of the 8th level west looks better. The east end has 6 in. of good mineral in its breast. In the Union Tunnel drift west the lode now is between two good walls with small mineral scattered through it. The ground has changed in the silver ore tunnel, and I expect to strike a lode at any time. In his postscript of above letter dated Nov. 27 he says: Have struck a good ½ in. of mineral in the silver ore tunnel this morning 182 fms. in. Take it for a branch of a big lode. If I strike it big will cable you immediately. His cable on Thursday the 12th inst. states that the heading of the tunnel is in country rock, and if no change takes place he would stop the work to-morrow.

SANTA BARBARA (Gold).—Mr. Hilcke, Pari, Nov. 14: During October 1168 tons of mineral were stamped, producing 4514 oits. of gold and 66 tons of refuse sand re-treated, yielding 32 oits. of gold, or a total of 4546 oits. of gold, equivalent to 3·892 oits. per ton of stone stamped. The produce of 4546 oits., valued at 8s. 6d. per oit., amounts to 1932l. 1s. 0d., and the estimated working cost for the month at Exchange 23½., being 1109l. 0s. 3d. leaves an estimated profit of 823l. 0s. 9d. for October. Mr. Hilcke reports that the appearance of the lode in general was about the same as when last advised, the few trifling changes which had taken place during October having been for the better, as was shown by the improvement in the auriferous quality of the ore, and the increase in the number of tons treated was satisfactory. The mine captain reports as follows: The quantity of ore raised during the month amounted to 1403 tons, of which 235 tons were rejected as refuse stone, and 1168 tons treated at the stamps, 66 tons of refuse sand re-treated by the pulveriser producing 32 oits. of gold: average quantity of ore raised per borer for the month 33·7 tons, or per hole bored 0·623 ton.

PITANGUI (Gold).—T. S. Treloar, Nov. 15: Advices that the clearing out of the adit was completed at the end of the month of October, and strenuous efforts were then made to resume driving, but on Nov. 3 operations here were again suspended, the quantity of water issuing, and the consequent heaviness of the ground, rendering this course unadvisable. Finding that no headway could be made in the main level, it was decided to attempt re-opening the small side level; this latter work progressed well, the water continuing to flow steadily near the entrance, and the stuff had been cleared when fresh torrents of water burts in, this time bringing with it large quantities of almost pure jacotinga, the whole of which is auriferous, and will do for treatment. The water coming into this level being so much, and the ground becoming so heavy, it was deemed expedient to open a second small level for drainage; this second level would be commenced forthwith on the left side of the adit, and would occupy, it was expected, about a month in driving. There will then be three outlets for the water, and no doubt with these it will be practicable to hole into the lode. The shaft was now quite dry, thus explaining the addition to the water in the adit, and the sinking of this shaft would be resumed when force was available. The difficulties caused by the water are not to be surprised at looking at the depth of the adit level, and the extent of ground to be drained, coupled with the fact that the works are situated at the foot of a high range of mountains. Once, however, the drawbacks in this respect are overcome there will be little fear of there being more water to contend with for many years to come, as a great run of jacotinga will be drained by the adit level. The mine captain reports as follows for the month of October: "In the small level we cut on October 7 a gold-bearing vein about 6 in. wide, running parallel with the pigarra, and samples from it showed gold in the batea or bowl, but not rich. On the 11th we cut another vein, and a large stream of water bringing a quantity of sand slime and jacotinga with it; three samples taken from this showed more gold in the batea than the first, we cannot give the size of this second vein on account of so much water, sand, and slime coming through the joints of the timber, when stopped in one place the water would burst out in another, and the last time it filled the tramroad with sand and slime for 50 fms. behind the end. After this we breasted up the small level to the mouth, leaving the water to take its course for awhile. The small level was driven 3 fms. 2 ft. All our force was employed clearing the tramroad from the 13th to the 24th. On the 25th we commenced in the adit to make it smaller with square edge timber; four set were put in, and the end of the level nearly reached, but the water and ground are again getting troublesome here.

CHONTALES.—The directors have received advices from their manager, dated Nov. 5: During the month of October 1700 tons of ore was treated, which produced 421 ozs. of gold, or an average of 5 dwts to the ton. Value of the gold, 1075l.; total cost for the month, 629l. 18s.; profit, 452l. 2s. The manager reports more water towards the end of the month, and he was able to work 24 stamp heads during the last fortnight.—San Sebastian: Stoped from No. 1 stope east 221 varas. Stoped from No. 2 stope 261 varas. Stoped from No. 3 stope 200 varas. Stoped from the back of the lode west of the new rise 100 varas. Total quartz raised from the above mine during the past month 15·3 cars, or 1350 tons, worth on an average 5 dwts. to the ton.—Estrella Mine: Stoped from the new stopes west 50 varas. We have risen in the new rise 10 varas through good payable ground. There is every indication that this mine will open out in value quite equal to San Sebastian. The cost does not always increase in proportion to our returns. In July last the cost for timber alone was an item of about $700.

LINARES.—Dec. 11: In the 120, east of Santa Tomas shaft, the lode is large, consisting chiefly of calcareous spar, quartz, and occasional stones of ore. The lode in the 135, east of Santa Tomas, is also large, and in composition similar to the level just described. In the 135, west of Santa Tomas, the lode is mixed with granite, and not of a promising appearance. In the 100, east of Warne's, the lode has fallen off very much. In the 115, east of Warne's, there is no improvement. The lode in the 115, west of Warne's, is large, with good stone of ore, worth ½ ton per fathom. In the 120, west of Peill's, a great length of valuable lode is being driven through, producing 2 tons per fathom. The lode in the 90, west of Peill's, is very compact and constant, giving us a great length of paying ground, valued at 1 ton per fathom. In the 120, east of Peill's, there is a strong well-defined and productive lode; worth 2 tons per fathom. In the 105, east of San Francisco shaft, a good length of profitable lode is being laid open; yielding 1¼ ton per fathom. In Peill's engine-shaft, below the 120, the men are getting on very rapidly with this sink. The lode in No. 227 winze, below the 105, is regular, compact, and rich; worth 3 tons per fathom. In No. 229 winze, below the 100, the lode is declining both in size and value; worth 2 tons per fathom. No. 230 winze, below the 100, is going down in a rich shoot of ore; producing 4 tons per fathom. The weekly returns were kept up with great regularity and ease during the past month, and the stopes are yielding well at present. The various works at surface are going on steadily, and the machinery is in good condition. We estimate the raisings for December at 200 tons.—Quinientos Mine: The lode in the 100, east of Taylor's engine shaft, is improving, and of a very promising appearance; worth ½ ton per fathom. In the 90, east of Taylor's, the lode is split into branches, and very much disarranged. The lode in the 80, south of San Carlos, is strong, well-defined, and regular, with occasional stones of ore. We estimate the raisings for December at 100 tons.

FORTUNA.—Dec. 11: Canada Incosa: In the 120, west of O'Shea's, the lode is very regular, with good stones of ore. The lode in the 50, west of Abercrombie's, is in contact with a strong cross course. In the 60, west of Abercrombie's, the lode continues very small. The 50, east of Abercrombie's, has passed through a long run of good lode, but it is getting smaller; valued at ¾ ton per fathom. In the 70, west of San Pedro, a fine piece of ore ground is being laid open, yielding 2 tons per fathom. The lode in the 80, west of San Pedro, is perfectly regular, and yields good stones of ore; worth ½ ton per fathom. In the 80, east of San Pedro, there is no improvement. The lode in the 70, east of San Pedro, is well defined, and comparatively easy for driving through; valued at ¾ ton per fathom. In the 120, east of O'Shea's, there is a large lode, consisting chiefly of calcareous spar and lead ore, producing 1 ton per fathom. The 100, west of Lowndes', continues unproductive. In the 100, east of Lowndes', a good length of fairly productive lode is being driven through; worth ¾ ton per fm. The lode in the 90, east of Caro's, continues very small; valued at ¼ ton per fathom. In Martinez winze below the 30 the lode is rather small at present, and the ground very hard; worth ½ ton per fathom. The lode in Pilar's winze below the 60 is large and strong, and producing 2 tons per fathom. In Galo's winze below the 110 the lode has become unproductive, and rather small at present. Lorne's winze below the 80 is situated east of Caro's shaft, and in advance of the 90 fm. level; lode worth 2 tons per fathom.

Los Salidos: In the 145, east of Taylor's shaft, the lode is small and poor, and the granite very hard. The 130, east of Taylor's, is still in a piece of broken and sterile ground between two cross-courses. In the 120, east of Cox's, a great length of good lode was driven through in the past month, yielding 3 tons per fathom. The lode in the 110, east of San Pablo, is small, compact, and regular, valued at ¾ ton per fathom. In the 80, west of Palgrave's, the lode is improving, and opening fairly productive ore ground, worth 1 ton per fathom. From the 80, east of Palgrave's, the men are driving in a northerly direction, where we expect to find the best part of the lode. Taylor's engine-shaft will be completed to the requisite depth for a 160 fm. level in the present month; lode worth 1 ton per fathom. In San Pablo shaft, below the 110, there is a strong, compact, and productive lode, valued at 3 tons per fathom. The lode in Lanare's winze, below the 130, is small, and of no value. The returns were kept up with perfect regularity during the past month, and the stopes are yielding fairly well at present. The machinery is in good working order, and all surface operations are going on very steadily. We estimate the raisings for December at 300 tons.

ALAMILLOS.—Dec. 11: In the 20, west of San Felipe shaft, the lode has fallen off greatly in the past fortnight, and is now worth 1 ton per fathom. The 100, east of Taylor's, is also less productive than it was; valued at ½ ton per fathom. In the 100, west of Taylor's, there is no improvement. The 85, west of San Adriano, is looking better than it has been for some time, yielding ½ ton per fathom. Although the 60, east of San Victor, is not so rich as it was, it is still a splendid lode, producing 4 tons per fathom. In the 70, east of San Victor, the lode continues unproductive. The lode in the 70, west of San Victor, is very regular, but almost destitute of ore. In the 40, east of San Victor, a slight improvement has taken place, and the lode is worth ½ ton per fathom. The lode in the 30, east of air shaft, is small and unproductive. In the 30, west of air shaft, the lode has improved in the past few days, and is now valued at ¼ ton per fathom. In the 40, south of San Carlos, some small veins have been intersected by this cross-cut. The lode in the 50, east of Judd's, is well defined, but small and poor at present. The 70, west of Judd's, continues without ore. In Taylor's engine-shaft, below the 100, the men are making fair progress, considering the hardness of the rock. The lode in Hidalgo's winze, below the 85, is promising, but at present does not contain ore enough to value. In Ortiz's winze, below the 40, the lode is large and spotted with ore. Pascual's winze, below the 20, is holed to the 30; lode worth ¼ ton per fathom. In Gigante's winze, below the 60, there is a very strong lode, consisting of calcareous spar and lead ore, valued at 1 ton per fathom. The lode in Carmona's winze, below the 85, is also very wide, and of a promising appearance, yielding 1 ton per fathom. The usual rate of weighings was kept up very steadily during the past month, and the stopes in that period have not undergone any change of importance. The ordinary surface works are going on with perfect regularity, and the machinery is in good condition. We estimate the raisings for December at 175 tons.

AUSTRALIAN MINES.

PORT PHILLIP AND COLONIAL (Gold).—The following advices, dated Oct. 30 last, have been received:—Quantity of quartz crushed on both the companies' and tributers' accounts for the four weeks ending Oct. 9 was 4590 tons; total gold obtained, 1575 ozs. 0 dwt. 12 grs. Receipts (including 1908l. 4s. 8d. obtained from tributers), 3447l. 17s. 3d. Payments (including 253l. 5s. paid for firewood), 2143l. 2s. 7d. Profit, 1304l. 14s. 8d., added to which was previous balance of 1862l. 19s. 6d., making an available balance of 3167l. 14s. 2d. The amount divided between the two companies was 1800l., the Port Phillip Company's proportion of which is 1170l. The balance carried forward was 1367l. 14s. 2d. Remittance, 1100l.

— Telegram, dated Melbourne, Dec. 13: "Month ending Dec. 4: Gold obtained from company's quartz, 320 ozs.; gold obtained from tributers' quartz, 1091 ozs.; profit, 1238l. Remittance, 700l."

SCOTTISH AUSTRALIAN.—The directors have received advices from Sydney, dated October 29. The sales of coal from the Lambton Colliery during October amounted up to Oct. 25 to 17,110 tons.

YORKE PENINSULA.—The directors have received advices from the committee of inspection at Adelaide, dated Oct. 30, with report from the Kurilla Mine to the 28th of that month. The following are extracts from Capt. Anthony's report:—Kurilla Lode: The 55 east is now driven 13 fms. from the shaft, but is rather spare for driving. The large quartz lode reported last month has given place to iron pyrites mixed with ore, but not worth dressing; this drive is about 36 fms. from the main bunch, and about 20 fms. from the lesser vein of ore connected with the main slide or cross-course. . . . In the 45 west the wall continues, and occasional stones of good ore occur from time to time. . . . The stope in the 45 east, nearest the hauling shaft, is almost worked out. The adjoining one is yielding 5 tons of 20 per cent. ore per fathom. . . . Morphett's Lode: The engine shaft is 11 fms. below the 30, and timbered down close; the lode is yielding 3 to 4 tons of 17 per cent. ore per fathom. . . . This shaft being so far in advance of the upper ground, our position on Morphett's lode is safe and healthy. At the 30 east a short patch of ore was passed through after writing my last report, when a floor rising slightly going eastward was met with, again disordering the lode; I hope, however, that the disorder is only temporary, as there is a vein of rich ore on the foot or south wall. I should say here that the best portion of the lode is standing north of the drive, but it will not be stripped down until the winze is holed from the 20. . . . The stope in the 30 west is yielding 3 tons of 17 per cent. ore per fathom. The lode in the stope at the 20 east is 10 ft. wide, and yielding 3 tons of 20 per cent. ore per fathom, and a large quantity of dredge ore.—Ore Returns: 101 tons have been shipped per Collingrove, and 57 tons per Gateside; ore on hand at the mine, 131 tons of 17 per cent., and 870 tons of dredge ore of about 5 per cent.

ENGLISH-AUSTRALIAN (Gold).—Capt. Raisbeck, Fryerstown, Oct. 30: We have only had two men working in the mine on wages, and they have been principally employed in securing the ground with timber. The tributers cleaned up on the 12th inst. for four weeks' work, crushed 240 tons of quartz, and the result was 34 ozs. 13 dwts. of retorted gold, which would give tributers 24s. per week per man; and, not being satisfied with the appearance of the stopes, they again cleaned up on the 26th inst., crushed 96 tons of quartz, and the result was 24 ozs. 10 dwts. of retorted gold, a better return than they expected, which is principally due to the improvement of the stone in the south end. They have extended this drive south 40 ft., and it is now 30 ft. from the boundary. I expect to hole to the New Era during the month. Although I expect better returns for the ensuing month, I do not think they will get sufficient gold to assist us much in prosecuting the work in the 420 ft. level. The 420 ft. end is 370 ft. from the south boundary, and to prove the lode between the levels a rise must be put up to the 330 ft. level for air (the No. 2 rise is already up 71 ft.), and the 420 ft. level driven south to boundary. To do this and other necessary works would cost about 240l. per month. We should be getting gold more or less in the meantime.

THE WEEK.

SATURDAY, DEC. 14.—The Port Phillip Mining Company announce that for the month ending Dec. 4 the profit made amounted to 1238l. There seems no doubt but that a further dividend of 1s. per share will be paid in February, when it is usual to hold the annual meeting. At the present low price of the shares the returns to the investor is over 15 per cent. These are unquestionably worth buying. There was again great heaviness in Egyptian stocks, the Unified are now down to 48, the Preference to 68½, and the Daira to 59. Metropolitan District decline to 60; the price is still far too high.

MONDAY.—Railways were flat all day. District dropped 2¼ (57). Brighton A closed no better than 129¾, Dover A being 121, Caledonian 93¾, and York A 106½. Grand Trunk stocks were also pressed for sale. The 1st preference are now only 33¼; 2nd, 22½; and 3rd, 10¼. Some of the sales were said to be on account of "looks up" in the West of England Bank. It now appears pretty certain that the unfortunate shareholders will have to prepare to meet a call of 7l. 10s. or 10l. per share. There was a very large business done in bank shares, prices being pretty firm.

TUESDAY.—Bank shares rather lost ground. There was a fall of 2l. in London and County (32 to 34), 1l. in London and Westminster (49 to 51), and 1l. in Joint-Stock (38 to 40). In railways there was great depression at the opening, followed afterwards by a marked recovery. Thus Brighton, A, touched 128½, and closed at 130¼, and Caledonian 92¾, but rallied to 93½. In mining shares the following met with good enquiry: Richmond, Port Phillip, Colorado, Chontales, Sierra Buttes, and Tankerville, while Wye Valley, West Wye Valley, Gogwinlon, and St. Harmon were offered at low prices to little or no purpose.

WEDNESDAY.—The report of the liquidators of the West of England Bank, issued to-day, showed a loss of over 300,000l., which means a call of 6l. It is feared, however, that when realisations take place the assets of the bank in many instances will yield very unfavourably. Then there are a large proportion of shareholders who will not be able to pay the call, so that in the end 10l. to 15l., or even 20l., per share may be required from the solvent ones. Bank shares were again offered, and Union, City, and National Provincial each fell 1l.

THURSDAY.—The Bank of England directors, though they had a protracted meeting, made no change in the rate, to the great gratification of an anxious crowd of City men waiting in the corridors. The markets at once rallied. The Commercial Bank of Scotland announce a dividend of 13 per cent., and the British Linen one of 14 per cent. Both the Commercial and the Union inform their proprietary that the capital and rest of each are intact. Shareholders, however, still desire to sell. The fall since Oct. 2 with leading banks is now as follows:—Bank of Scotland, 42; British Linen, 52; Clydesdale, 108; Commercial, 66; National, 57; and Union, 110.

FRIDAY (*Opening*).—The markets are undecided, but with a weak tendency. Turkish, 1871, are offered at 51¼, which is a fall of 2l. from Thursday. The Fives are unchanged, as are Egyptian Unified and Preference, prices being 11½ to 11¾, 48¾ to 49, and 68¾ to 69 respectively. Bank shares are dull. In mines, Pateley Bridge are offered at 1¾, but meet with no demand. Great Laxey and Van are 10s. down. New Zealand Kapanga, ⅜ to ⅝; Port Phillip, 10s. to 12s. 6d.; Richmond, 10¾ to 11; New Quebrada, 1⅜ to 1½. The Eastern Telegraph Company announce a dividend for the quarter of 2s. 6d. on the ordinary shares and 3s. on the preference.——*Two o'clock.*—At the Pandora general meeting, to-day, the report disclosed a very satisfactory state of things. Notwithstanding the ruinous prices paid for ores, it appears this most promising mine is paying costs by simply selling 20 tons of lead ore and 25 tons of blende per month. The shares are ¾ to 1, and firm. The markets have become flat. Turks have fallen to 11⅜. Unified to 48¼, and Preference to 68¼, sellers. Banks are down. County shares are offered at 32, and Westminster at 49, being a fall of 1l. in each. The New Egyptian Loan now stands at 1⅞ dis. Eberhardts are somewhat in demand, at 3½.——*Four o'clock.*—Turkish, 1871, have fallen to 30½, and the Fives to 11¾. Union Bank shares have been dealt in at 33¼, and National Provincial at 41 (12l. paid). A comparison of present prices of London bank shares with those ruling three months ago shows that holders are poorer by 8½ millions. Royal Acquarium, 4¾ to 4⅝; Price's Candle, 9¾ to 10¼; Credit (A), ⅝ to ¾; United Discount, 3 to 3⅛; Chapel House, 2⅝ to 3; Bilson and Crump, 2 to 3; Newport Abercarn, 3 to 3⅛; Cardiff, ¾ to 1.

FERDINAND R. KIRK.

MANUFACTURE OF FUEL.—The suggestions of the agglomeration of coal dust have been very numerous, yet none of them have given entire satisfaction, and the want of solidity in the finished fuel has been one of the causes of complaint. Messrs. BROMFIELD and LACKERSTEEN, of Poultry Chambers, have now patented a process which produces a thoroughly hard brick at a very small cost. Their invention consists in mixing the dust of coal with a slight proportion—about 5 to 12 per cent.—of Roman or Portland cement, preferably the former, by means of an extract obtained from seaweed or other similar vegetable matter capable of yielding when heated in the manner hereinafter described a mucillaginous or adhesive solution. In carrying the invention into effect the seaweed may be first steamed in a close-jacketed cylinder for a few minutes, and then boiled to render it softer, and pressed in a hydraulic press; or, if found preferable, the seaweed may be simply boiled before pressure. A mucillaginous or adhesive solution is obtained by means of this treatment of seaweed, or other similar vegetable matter, with which coal dust or cement (the latter, which may be either Roman or Portland, being in the proportion of from about 5 to 12 per cent.) are mixed in the ordinary manner in which cement, mortar, or other similar material is mixed. The residual matter after the mucillage has been extracted may be carbonised and added to the mixture if desired. The combined materials are then moulded to any desired shape by hand, or by means of a brick-making or other suitable machine, working either by hand or steam-power.

Vice Chancellor Malins has appointed Mr. James Waddell provisional official liquidater of the Saint James's Bank (Limited).

TO THE METAL TRADE.

FOR COPPER, TIN, LEAD, &c., apply to—
MESSRS. PELLY, BOYLE, AND CO.,
SWORN METAL BROKERS,
ALLHALLOWS CHAMBERS, LOMBARD STREET, LONDON.
(ESTABLISHED 1849.)

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, DEC. 20, 1878.

IRON.	£ s. d.	£ s. d.
Pig, GMB, f.o.b., Clyde..	2 3 4½	2 3 5
,, Scotch, all No. 1 ...	2 4 0	3 5 0
Bars, Welsh, f.o.b. Wales	4 17 6	5 0 0
,, ,, in London.	5 7 6	5 12 6
,, Stafford., ,, .	6 10 0	7 0 0
,, in Tyne or Tees ...	5 5 0	5 10 0
,, Swedish, London ..	8 15 0	9 0 0
Rails, Welsh, at works..	4 15 0	—
Sheets, Staff., in London	7 15 0	8 5 0
Plates, ship., in London	6 12 6	—
Hoops, Staff.	7 5 0	7 10 0
Nail rods, Staff. in Lon.	5 15 0	6 10 0
STEEL.		
English, spring	18 10 0	19 0 0
,, cast	30 0 0	40 0 0
Swedish, keg.....	14 0 0	—
,, fag. ham.	15 0 0	—
LEAD.		
English, pig, common..	14 12 6	—
,, ,, L.B.....	14 17 6	15 0 0
,, ,, W.B.	16 0 0	—
,, sheet and bar..	15 10 0	—
,, pipe	16 0 0	—
,, red	18 0 0	18 10 0
,, white	24 0 0	26 0 0
,, patent shot ...	19 0 0	—
Spanish	14 10 0	—
NICKEL.		
Metal, per cwt	18 0 0	20 0 0
Ore, 10 per cent. per ton.	24 0 0	26 0 0
QUICKSILVER.		
Flasks of 75 lbs., ware..	6 7 6	—
SPELTER.		
Silesian.....	16 10 0	16 15 0
English, Swansea	17 0 0	17 10 0
Sheet zinc	20 10 0	—

TIN.	£ s. d.	£ s. d.
English, ingot, f.o.b...	66 0 0	—
,, bars ,, ...	67 0 0	—
,, refined.....	68 0 0	—
Australian	61 0 0	—
Banca ..... (nom.)	64 0 0	65 0 0
Straits	61 0 0	—
COPPER.		
Tough cake and ingot.	63 0 0	—
Best selected	64 0 0	—
Sheets and sheathing.	67 0 0	67 10 0
Flat Bottoms	70 0 0	71 0 0
Wallaroo	67 10 0	—
Burra, or P.C.O.	65 0 0	65 10 0
Other brands	62 0 0	64 0 0
Chili bars, g.o.b.....	57 0 0	—
PHOSPHOR BRONZE.		
Bearing metal	£105 0 0	
Other alloys	£110 0 0	125 0 0
BRASS.		
Wire	7 d.	7½d.
Tubes.....	7¼	7½
Sheets	8	8¼
Yel. met. sheath. & sheets.	5⅝	5¾
Nails composition.....	8	8½
TIN-PLATES.*	per box.	
Charcoal, 1st quality ...	1 6	1 9
,, 2nd quality...	1 0	1 1
Coke, 1st quality	0 16	0 16 6
,, 2nd quality	0 15	0 16 0
Black .....per ton	16 0 0	16 10 0
Canada, Staff. or Gla., at Liverpool	11 0 0	12 0 0
Black Taggers, 450 of 14 × 10	30 0 0	—

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; IX 6s. per box more than IC quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

REMARKS.—This week has not differed materially from its immediate predecessors either in respect to the amount or description of the business doing, or the terms upon which it has been transacted; but it is nothing unusual about this time for business to fall off, for there is generally a disposition amongst merchants to curtail engagements as much as possible, both on account of the Christmas holidays and the near approach of the end of the year, and there is certainly very little in the present condition of trade to induce anyone to depart from an old-established custom. The year has been wholly bad from beginning to end, and the last stage is, perhaps, even worse than the first; for there is not only less trade, but in most instances larger stocks and lower prices. In every way a merchant's and manufacturer's business is adversely affected, and it matters not whether it is carried on by commission or by profit, the result in both cases is unsatisfactory in the highest degree. We trust it will never again fall to our lot to have to chronicle such a catalogue of disasters and calamities as have occurred during the year 1878.

Some of these events in banking and commercial circles have been of the most flagrant and disgraceful character, and the easy way in which dishonest rogues escape calls for an immediate revision of our bankruptcy and criminal laws. Every protection should be afforded to honest traders, and severe punishment ought to be inflicted upon dishonest traders. There is a number of people who do an immense amount of mischief as soon as they can obtain credit; they go on in the most reckless manner, realising their goods below cost of production merely to get into funds to meet acceptances, and to enable them to get deeper into debt; they are utterly regardless of the interest of those who suffer by their folly and crime; and as long as they can secure a handsome income, and make a pocket for themselves, that it is all they care about. Such people are, of course, void of all honest principle, and, consequently, have no feeling for others, yet they are often received again into English society, and after having compromised with their creditors or been whitewashed at the Bankruptcy Court come out in a little time grander than before. How is it done? We fear too frequently from the proceeds of their former swindling and robberies. But now that such rascality has come to light it is to be hoped that it will be most effectually stopped, and that our commercial community will in future consist solely of honest men.

As regards the state of our markets, they are only suffering in common with those of others; and, as the position of holders and importers of metals generally is considered sound, there is no doubt that upon the first symptoms and the least revival of trade prices will be advanced. It is only under the extraordinary pressure that they are kept so low, for they are admitted to be very unremunerative, and in many cases leave an actual loss, so that many works, sooner than accept them, have entirely ceased operations. It is seldom that a business is abandoned while the slightest profit is attached to it, and no surer sign of the unfavourable state of the times could be given than the numerous stoppages of the various mills and works throughout the country. The great reduction in the manufacturing price, combined with the prevalence of cheap prices, ought to place the trade upon an improved footing; and, provided nothing occurs to interfere with the free course and development of trade, there is every reason to expect a considerable increase in the demand soon after the turn of the New Year; and naturally as stocks get reduced prices will be advanced, and there will, probably, be a more satisfactory return for all parties doing legitimate business.

After such a long run of depression it is but reasonable to expect a reaction shortly. Political squabbles are dying out, and perhaps the great powers will see their way clear to come to some mutual arrangement for the reduction of armaments, and thus afford some relief to the people from the burden of excesive taxation. The distress throughout this country is a proof of the poor state of trade, and evidence of the necessity which exists for giving some relief to the commercial classes. There does not seem much probability of money being dearer as trade requirements are so extremely limited, and it may possibly become cheaper during the month of January. The Exchanges being exceptionally low are less likely to sustain any material further fall, but, on the other hand, may gradually recover. The reconstitution and starting of new firms at the beginning of the New Year will tend to throw a little fresh animation into trade. Speculators and investors will shortly be seeking means for employment of capital, and opportunities for anything that offers a fair field for speculation. Undertakings which have been kept in abeyance on account of political agitation, and more recently from financial causes and commercial failures, will ere long be put in hand. The low prices and cheap labour will stimulate building and vast constructions of various kinds. Apprehensions of war, or falling markets, or bank and mercantile failures will probably pass away with the Old Year, and we trust that all will commence the New Year with renewed confidence and in better spirit. Difficulties and dangers have been overcome, and the course is decidedly clearer and more promising than before, and it remains for people to make the best use of the brightening prospects which lie before them. A little more more energy and activity is what is wanted, and these would soon give the markets an improved appearance and stronger tone.

COPPER.—There have been slight variations only in the price of Chili bars, scarcely amounting to more than 5s. per ton at the most, and the market may be described as almost stationary. The stock on the 15th inst. in Liverpool and Swansea was 23,388 tons, against 23,662 tons on Nov. 29, or a reduction of 274 tons, and the charters for the first half of this month were telegraphed 1300 tons, and as the previous charters were only 1200 tons it is expected that the figures on Jan. 1 will show a considerable reduction upon the previous totals. At the same time there is an increase in the supply compared with the two previous years, but it is chiefly in precipitates, there being an excess this year over that of 1877 of about 3000 tons, and about 7000 tons more than in 1876. The total exports are favourable for this year, but there is not so much doing just now, and smelters are mostly very bare of work, and there is no difficulty in obtaining an expeditious delivery, but India is not buying, owing to the low and uncertain rate of exchange. No quantity of sheet copper could be disposed of much above 64*l.* to 65*l.* Yellow metal is 5¾d. per lb., but sellers seem disinclined to meet the market to this extent yet awhile, and hope by holding back to secure higher prices, but there is nothing apparently more doubtful than the course of exchange, and although we all sincerely hope to see an improvement, yet the fact of the banks declining to purchase Council bills on two successive occasions clearly shows that unless the Government will drop the rate the banks will not do business. The Indian banks are curtailing business as much as possible, which is very inconvenient to merchants, for it considerably interferes with their financial arrangements, and greatly tends to curtail business. If the merchants generally are not buying manufacturers must compete more keenly for what few orders can be obtained, and this usually leads to the acceptance of lower rates. Under these circumstances it is impossible that the market can advance. We must, therefore, look forward for easy rates during the remainder of this year. The only way to give immediate relief to the market will be for importers to discourage fresh imports until the over supply has to a great extent been worked off.

IRON.—The only change that has taken place place in our market is a slight reduction in prices, and Staffordshire sheets are now procurable at 7*l.* 15s., and nail rods 5*l.* 15s. f.o.b. here. These prices are, of course, for common quality, but it only shows to what a state the works are reduced in being obliged to accept no better prices than those of Welsh and North of England makes. These prices best explain the position of the Staffordshire ironmasters, and show how hard driven they are for work; but, with all the advantages of cheap prices, they cannot obtain sufficient orders to keep them going, and they are at their wits ends to know what is to be done. To close the works is loss, and to go on is ruination. But if Staffordshire comes forward to compete with Welsh and Middlesborough, what will they be able to do? Nobody will buy East Coast and Welsh iron if they can buy Staffordshire at the same price, and, therefore, sellers of these makes must reduce, and they had better not be long in making up their minds to it, for Welsh and East Coast iron must evidently go down in price or sellers will get no share of the trade. Welsh bars ought not to be higher than 5*l.*, and nailrods 5*l.* 5s., and arrangements must be made whereby it can be made and delivered at these prices. The railway companies must reduce their rates of carriage or they will obtain no traffic, and they had better carry the iron and mineral for a time without any return whatever rather than allow the districts to fall into decay, for it will not only be the loss of carriage on iron, but coal and goods of all description, and their passenger returns will yearly decline. The working of railways is better understood now than formerly, and the expenses of management attending them ought to be considerably reduced.

In the first place, their permanent way costs much less, and the substitution of steel for iron rails must enable the company to effect a great saving of labour, and the wages question must extend to the officials, high and low, in railways, as well as at works, collieries, mines, &c. Retrenchment must be enforced everywhere, for it is now becoming a fight for existence, and only those who can hold out the longest will survive it. There are competitors on the continent of Europe who are ready to execute work at cheaper rates than those hitherto acceptable here, and not until after the orders have passed out of our hands do the works see their mistake, and for a considerable time past they have usually been a day too late. They follow others instead of taking the lead, and consequently lose the business, and when they reconcile themselves to the price then the orders are not to be obtained. Repeated warnings have we given, but all to no purpose; the trade has been obstinate, and none would give way, masters waiting for men, and the men holding out to the last. Reductions in prices tardily submitted to, and idleness and indifference prevailing in place of general activity. Our ironmasters seem to have surrendered the reins to other hands, and certainly do not now take the lead which their predecessors so manfully and honourably held. There is still no proper understanding or settled arrangement with regard to the working of the trade, and the deplorable state into which things are drifting will drive men to desperation. The destitution will bring about riots and disturbances, for men will fight and plunder when starvation stares them in the face, and many people are so reduced in circumstances that, however willing they might be to alleviate the distress, they have not the means to do so, for no one is making any money more than will cover ordinary expenses.

If a merchant can only hold his own and pay his way, he considers he has done well; as to putting anything by for old age or for a rainy day, it is not so much as thought of. But the loss of trade has been needlessly great; if only proper measures had been taken, a little foresight might have saved a world of trouble. There has been nothing but blundering and quarrelling in the iron trade; and like most other things, when men quarrel with their victuals they lose them. The question cannot be much longer delayed, and landlords will have to quickly decide as to whether they will ease the terms and conditions of their leases, or prefer to have their estates converted into mere pastoral and agricultural districts, which will not be worth 1*l.* per acre. Owners of mills must submit to a considerable modification also in their terms to their tenants. Masters must be content with less profit, and live in humbler style; and the men must work harder and longer for comparatively low wages. Goverument might step forward and exempt all such property from taxation for a year or two, and put the burden on where it can best be borne, such as the Westminster, Grosvenor, Bedford, and other large and valuable estates. The accumulation of wealth within a narrow circle is too great, and it would be no hardship to tax it a little more, for it would not inflict the slightest privation upon those who possess it. People who have independent incomes which are not derived from the vicissitudes of trade are the most capable of bearing the burden of taxation. Middlesborough pig-iron is 34s. 6d. to 35s. for No. 3; and Scotch pigs are quoted at 43s. 5d.

SHIPMENTS.

For the week ending Dec. 15, 1877 ..... Tons	7,122
For the week ending Dec. 14, 1878	6,205
Decrease	917
Total decrease for 1878	51,508
Imports of Middlesborough pig-iron into Grangemouth:—	
For the week ending Dec. 14, 1878..... Tons	8,711
For the week ending Dec. 15, 1877	6,205
Increase	1,123
Total decrease for 1878	10,309

FURNACES.

In blast Dec. 15, 1877	88
In blast Dec. 14, 1878	92

TIN.—It is said that the present movement in the tin market is fictitious and only speculative, and that is the reason there is such a strong opposition against the advance. What foundation there exists for such assertions can soon be proved. Whether fictitious or otherwise that point can be easily ascertained by reference to statistics, and as to its being speculative, there was not the slightest doubt about it being partly effected by speculation, but the fact of the speculative element predominating is one great reason why we have been urging consumers not to withhold their orders, because whenever a strong and powerful speculative party lays hold of a market there is always danger in delaying purchases. The statistical position of this metal, compared with what it was about two months since, which is the time when the rise began to take place, is decidedly better, and as the deliveries have been very satisfactory, and the shipments from Australia particularly moderate, there are ample grounds for an improvement in prices If there was no other cause than the main cause—supply and demand—to regulate the price, sellers are certainly guaranteed in obtaining a higher price than they were about two months since, when the price was quoted down to 52*l.*, but we have already stated in the most emphatic manner that the price ought never to have been knocked dawn to that figure, and it was an unnecessary and uncalled for slaughter on the part of those who then sold, and they are now so vexed with themselves because they sold at about 52*l.* instead of waiting until the market reached 62*l.*, that they have ever since been doing their utmost to depress prices, but their efforts hitherto have not proved very successful, for the average of the rise has been maintained at about 10*l.* per ton.

Considering the great depression which exists in every branch of business it is truly wonderful how well the deliveries are kept up, and although the holidays will make some difference in the consumption for December, yet we doubt whether they will be less than our previous estimate. Taking all things into account, operators have every reason to be satisfied with the progress they have already made, and they should not feel discouraged by the opposition against them. Their chances are quite as good now as before, and in some respects rather better. There is so much stock concentrated in the hands of the chief operators that it would not cost such a great deal to make a clear sweep and buy up everything on the market, and this may possibly be done, and if carried out in a prompt and effective manner would enable holders to control the market. Hesitation leads the accumulation of charges, and no equivalent in price to compensate. The beginning of the New Year would be a very good time to renew operations, especially if the stock is further reduced, and the advices regarding supplies continue favourable. The Straits last year in November, December, and January (*i.e.*, the usual heavy supplies before the Chinese New Year) shipped together to Europe 1515 tons, a similar quantity may, therefore, be expected this year, and probably the higher prices will precipitate shipments a little, as India is slow to accustom herself to dearer prices, and what was formerly shipped in January may perhaps be shipped in December, and *vice versa*. It is, therefore, not unlikely that shipments will be made as follows—November, 525 tons; December, 600 to 800 tons; January, 200 tons; say, 1325 tons in all. As regards Australia, which has become by far the most important source of supply, we received in November last year 1350 tons; December, 1200 tons; and January shipment was 475 tons: total, 3025 tons, averaging 1000 tons, but this year in November we have only 375 tons, and the future of the market depends upon December and January shipments, and providing they are moderate it will be a plain proof that Australian production is declining, and that the market is in an excellent position.

Facts are stubborn things, and override ideas, impressions, and opinions, and what could be more substantial evidence of the falling off in production than a falling off in shipments? The market price was brought down from 150*l.* to nearly 50*l.* solely on account of the excessive shipments from Australia, and what is to prevent a rebound to something approaching former values if that source of supply is about to decrease to any considerable extent. The following extracts of letters received from uninterested parties in Australia by last mail may prove instructive and valuable in forming a correct opinion of our market. Extracts: "Most of the tin mines in this colony are closed, and it is only the ore on grass that is coming to hand now. Cheaper labour or better prices for tin must be got before the closed mines will resume work." Another correspondent says, "Most absurd reports have been spread at home as to the richness of the late discoveries in Tasmania, for which there is no foundation whatever, and when the effect of such has passed off we may expect some recovery in the tin market." We will close our remarks with the statement of a third writer: "The Kangaroo and Pyremont Tin Smelting Works will probably close, as there is not sufficient ore to employ them! altogether, out of 14 furnaces in Sydney, 12 are closed, or will be closed, leaving only two to work."

QUICKSILVER.—The price has again been reduced to 6*l.* 7s. 6d., and good sales have been made thereat. The tendency continues, however, towards increased ease, and the last Californian advices report a weak market there.

LEAD.—The price is quoted 2s. 6d. per ton lower than last week for English, but without effecting any improved demand.

THE IRON TRADE.—(Griffiths's Weekly Report).—Friday evening. The Glasgow market, owing to scarcity of warrants, has been very firm this week, and yesterday business was done at 43s. 7½d. cash, the market closing with sellers at 43s. 6d. cash. To-day the market has again been firm, and closes this evening with buyers of g.m.b. warrants to 43s. 6d., an advance this week of 6d. per ton. Makers' iron is unchanged. We quote No. 1, Gartsherrie, 50s.; Coltness, 51s.; Calder, 51s.; Langloan, 52s.; Summerlee, 48s. 6d.; Monkland, 44s., f.o.b. Glasgow; Glengarnock, 48s.; Eglinton, 43s. 9d. f.o.b. Ardrossan; Shotts, 51s. 6d. f.o.b. Leith. We cannot record any improvement in the iron trade this week. Recent events in the West of England have disturbed confidence, and increased the anxiety which the failure of the City of Glasgow Bank created. Buyers of iron, except for immediate use, are, therefore, shy in all directions. Middlesborough pigs are down 1s. per ton. Some numbers are now 35s., less commission. This reduction has given the smelters on the Tees a larger share of the Scotch orders.

Staffordshire and Shropshire pigs have evidently reached the lowest limit. Messrs. Rounds, of Tividale, Messrs. Holcroft, of Bovereux, and Messrs. Fowler and Co., of Barbour's Field, who make the best mine iron, have blown out all their furnaces (the last of Barbour's Field will be blown out this week), simply because present prices land them in a loss, and it is said that Sir Joseph Pearson is about to blow out two of his, and the noble Earl of Dudley one furnace at Conygre. This wholesale shutting up of works indicates the bottom of prices for best Staffordshire and Shropshire iron, and no doubt with the New Year we shall see buyers coming forward and availing themselves of the present low rates to supply present necessities; and we hope and believe, as the early months of 1879 open to witness more life and activity in the raw material in these and other districts. The difficulty with the colliers at Cannock Chase is settled by mutual agreement. Most of the colliers are already at work, and it is probable that before our next the misunderstanding with the Shropshire ironmasters and the wire-rollers will have been amicably settled.

Our own market has been remarkably quiet this week. The few orders given out have been for marked Staffordshire bars at 7*l.* 10s. per ton, and some small orders for boiler-plates of best quality of W. Millington and Co., of the Summerhill Works, and E. T. Wright and Sons, of the Monmoor, Wolverhampton. The demand for galvanising sheet-iron has been quiet this week. The same may be said of nail rods for exportation. The liquidators appointed to the old Blaenavon Company are Mr. J. J. Wallis and Mr. E. P. Martin; the works will be carried on and the large contracts on hand completed by these gentlemen for the proprietors. I. Hirsch, of Stockholm, has failed for a large sum—3,000,000 crowns; the failure is attributed to the fall in the price of iron, which during the last three years has dropped to the same extent in Sweden as in this country. The tin-plate trade is a shade better all round. Cokes are firm at 15s. 6d., and the large makers in Wales are often refusing contracts at anything under this price The market for tin is weaker; the price for Straits and Australian spot 61*l.* 10s

Messrs. HARRINGTON, HORAN, and Co. (Liverpool)—Arrivals here during the fortnight of West Coast, S.A., produce:—Galicia, from Valparaiso, 533 tons bars, and 70 tons ingots. At Swansea, *nil*. Stocks of copper (Chilian and Bolivian in first and second hands likely to be available, we estimate at—

	Ores.	Regulus.	Bars.	Ingots.	Barilla.
Liverpool	—	917	18,107	—	—
Swansea	1447	6297	1,745	—	—
Total.....	1447	7214	19,852	—	—

Representing about 23,388 tons fine copper, against 23,662 tons Nov. 29; 17,037 tons Dec. 15, 1877; 14,207 tons Dec. 15, 1876; 12,004 tons Dec. 15, 1875. Stock of Chili copper in Havre, 6000 tons fine, against 7612 tons Dec. 15, 1877; stock of Coro Coro barilla in Havre, 1315 tons fine, against 900 tons Dec. 15, 1877; stock of Chili copper afloat and chartered for to date, 14,400 tons fine, against 10,100 tons Dec. 15, 1877; stock of foreign copper in London, chiefly Australian, 6150 tons fine against 4797 tons Dec. 15, 1877.

According to the Board of Trade Returns the total imports and exports into and from this country for the first eleven months of the following years were—

IMPORTS.	1876.	1877.	1878.
Copper in ores .....Tons	10,385	13,600	12,238
Do., regulus and precipitate.....	11,898	13,554	18,356
Bars, cakes, and ingots	35,941	37,255	37,385
In pyrites, estimated	12,194	15,408	13,379
Total.....	70,398	79,817	81,358
EXPORTS.			
English copper, wrought & unwrought	22,227	20,744	27,875
Foreign copper—unwrought.....	15,923	13,266	11,821
Yellow metal	11,576	15,923	13,746
Total	49,726	49,933	53,442

Messrs. BROOKER, DORE, and Co.—TIN-PLATES have continued to improve, and in some instances makers have advanced their prices 1s. to 1s. 6d. per box upon the extremely low rates that were accepted some weeks since. It is satisfactory to notice that the shipments for November show an increase of 25 per cent. upon the corresponding month of last year.—GALVANISED IRON: The demand is still quiet, but accounts from the Australian colonies are somewhat better. The higher rates of freight now prevailing will check immediate shipments, but at the same time give a firmer tone to the markets on the other side, and this assist in clearing off the heavy stocks.—LEAD has further slightly declined.—SPELTER: The market has been in a somewhat sensitive state owing to reports of large sales, but certain brands are still offering at the low prices we quote.

Messrs. FRY, JAMES, and Co.—Our markets continue to be almost lifeless.—COPPER has been dealt in only to a small extent, and at lower prices; the disinclination to new engagements at the close of the year accounts for this, in some degree, but it is more particularly due to the general heaviness in manufacturing and mercantile circles.—IRON is without quotable change.—TIN has been dealt in more than other metals, but it has still shown more or less of the prevailing tendency to lower prices, the fall since our last having been about 30s. per ton on fine foreign, and 3*l.* per ton on English.—LEAD is about 5s. per ton cheaper, and in slack demand.—SPELTER is steady at late rates.—TIN-PLATES in moderate demand, and a trifle firmer in prices.

Messrs. PIXLEY and ABELL.—GOLD continues to flow into the Bank, there being no demand whatever for export; the total so disposed of since our last of the 12th inst. is 682,000*l.*, and there have been no withdrawals. The greater part of the arrivals this week have come from Paris, and further considerable amounts may be looked for from thence before the close of the year. We have received during the week 47,900*l.* from the Brazils; 37,500*l.* from the West Indies; 61,130*l.* from India; 44,000*l.* from New Zealand: total, 190,530*l.*—SILVER: There has been no demand whatever for India, and again the weekly steamer leaves without any shipments for the East. The Austrian orders, which cleared of last week's supply at 50d. per ounce, were only renewed by the inducement of a further fall in price, and the silver by the Pacific steamer, in the absence of all other demand, sold to-day at 49¼d. The arrivals have been 20,000*l.* by the West India steamer; 67,000*l.* by the Pacific steamer: total, 87,000*l.*

The MINING SHARE MARKET has been dull, and without any material alteration this week, either in prices, which are for the most part nominal, or in the amount of business transacted; nor is it likely that much change will take place until after the Christmas holidays.

TIN shows no improvement, and tin mines are almost unsaleable. Carn Brea shares are quoted 31 to 33. Cook's Kitchen, 1¼ to 1½; Dolcoath, 28 to 30; East Pool, 9 to 9½; Penstruthal, 3s. to 5s.; South Condurrow, 10 to 10½; South Frances, 6⅜ to 6¾; Tincroft, 8 to 9; West Basset, 2½ to 3; West Frances, 3 to 3½; Wheal Agar, 3⅜ to 4¼. Wheal Grenville, 2 to 2½; at the meeting a call of 2s. 6d. per share was made. Wheal Kitty (St. Agnes), 1 to 1½; Wheal Peevor, 6 to 6½; Wheal Basset, 10 to 12½. At Penhalls meeting the accounts showed a loss of 878*l.* 2s. 6d., and a call of 3s. per share (750*l.*) made. The returns of tin yielded 236*l.* 17s. 1d.; costs, 324*l.* 19s. 1d. At Blue Hills the accounts showed a loss of 343*l.* 10s. 10d., and a balance against the mine of 1131*l.* 3s. 5d. No call was made.

COPPER MINES still flat. At the Cornish Ticketing on Thursday the standard for ore declined 3*l.* The average price of the ore realised only 2*l.* 17s. 6d. per ton. Devon Great Consols, 30s. to 35s.; the sale here—782 tons—realised 1596*l.* 14s. 6d. South Caradon, 50 to 60; 402 tons here realised 1944*l.* 3s. 6d. East Caradon, ⅝ to ¼; 30 tons brought 145*l.* 10s. Marke Valley, 12s. 6d. to 17s. 6d.; 311 tons brought 811*l.* 12s. Parys Mountain, 7s. to 9s.; the 90 south, according to the agent, continues to improve. Morfa Du, 17s. 6d. to 20s.; Mellanear, 4 to 4½; West Tolgus, 38 to 40; West Seton, 8 to 10.

LEAD.—There is no change in lead mines, and scarcely any business doing. South Darren, 1½ to 2; the accounts presented to the meeting, particulars of which will be found in another column, show returns for 12 months to Dec. 4. Lead ore, 435 tons, at 16*l.* 16s. 2d. (6877*l.* 15s.); copper ore, 116 tons 17 cwts., at 4*l.* 12s. 2d. (538*l.* 8s. 5d.); sundries, 52*l.* 7s. 10d.: total, 7468*l.* 11s. 3d. The costs for the same period, including London and other expenses, were 8053*l.* 11s. 10d., thus showing a loss of 585*l.* 0s. 7d., and assets over liabilities of 1114*l.* 9s. 10d. It is explained in the directors' report that owing to an accident to the machinery there are only 11 sales credited against 12 months' costs, and the average price for the ore is only 15*l.* 16s. 2d., against 18*l.* 12s. 11d. in the previous year. The returns are now to be limited to such a quantity as will pay the costs until the price of lead improves.

Roman Gravels, 6½ to 6¾; no particular change here. Tankerville, 2½ to 3; the 206 east is driven 19 fms. 4 ft., lode worth 1½ ton per fathom, and entering, the agent states, a rich bunch of ore. The frost has interfered with dressing, &c. Pandora, 1 to 1½; the accounts presented to the meeting, particulars of which will be found in another column, show a balance of assets over liabilities, taking credit for 45 shares unissued, 20 tons of lead, and 30 of blende unsold, of 417*l.* 18s. 7d. During the summer months the operations were suspended owing to want of water to work the pumping-wheel, but the ores sold for 12 months have been 112 tons 3 cwts., realising 1121*l.* 9s. 2d.; blende—209 tons—357*l.* 7s. 10d.: together 1478*l.* 17s. The mine is now 33 fms. deep, and Mr. Eddy, who has just inspected it, states that it could be made a permanently profitable one, and to pay good dividends, if more vigorously opened in depth and length. Van, 17 to 18; there is an improvement here in the 90 west.

East Van, 1¾ to 2½; Great Laxey, 17 to 18; Leadhills, 2 to 2½; Pateley Bridge, 1 to 1½; Rookhope, 5s. to 10s.; South Roman Gravels, 2s. 6d. to 5s.; West Chiverton, 1½ to 2. Glenroy, 10s. to 12s. 6d.; at the meeting held on Friday the accounts, showing assets over liabilities of 7128*l.* 14s. 10d., together with the directors' report, were received and adopted. Caron, 2 to 2½; Frongoch, 2½ to 2¾; Grogwinion, 2 to 2¼; Hartington, 1½ to 2; Mawston, 50 to 60; Red Rock, 2 to 2½; West Wye Valley, 1¾ to 2¼. Grogwinion, 2 to 2¼; this mine sold 100 tons of lead ore on the 18th, at 9*l.* 7s. 6d. per ton. Aberllyn, 10 to 12; D'Eresby Mountain, 30 to 40; Clementina, 1 to 1⅛. Monydd Gorddu, 2¾ to 3; this mine sold 10 tons of lead on Friday, at 10*l.* 12s. 6d. per ton. Blaen Caelan, 3 to 3½. Cakemore, 3½ to 3¾.

FOREIGN MINES.—Blue Tent, 2¾ to 3½; Cape Copper, 29 to 30; Colorado, 1⅞ to 2¼; Hultafall, 3 to 3½. Chontales, 10s. to 12s. 6d.; advices show a profit for October of 452*l.* 2s. The gold return, 421 ozs., is valued at 1075*l.*; cost, 622*l.* 18s. At Javali the returns, 430 ozs. of gold, are valued at 1125*l.*; costs, 870*l.* Santa Barbara, 1¾ to 2; the advices show a profit of 823*l.* 0s. 9d. for the month of October. The returns, 4546 ozs. of gold, are valued at 1932*l.* St. John del Rey, 275 to 285; at the meeting the accounts showed an available

balance of 42,462*l.*, and a dividend of 15 per cent. was declared, which, with 10 per cent. added to the reserve fund, absorbed 41,745*l.* of said balance. Placerville, 2⅛ to 2¼; the main shaft has reached the 400 ft. level, and a cross-cut started towards the lode. Eberhardt and Aurora, 3⅜ to 3½; Frontino, 2 to 2¼; New Zealand Kapanga, 7s. 6d. to 12s. 6d.; Last Chance, ⅜ to ½; New Quebrada, 1⅜ to 1½; Pestarena, 3s. to 4s.; Port Phillip, 10s. to 12s. 6d.; Richmond, 10¾ to 11.

The Market for Mine Shares on the Stock Exchange has again been very dull, and considering the close approach of the Christmas holidays it would scarcely be reasonable to expect much activity, but as everything politically appears to be progressing favourably, great confidence is expressed that with the New Year we shall see a decided and permanent improvement. The views expressed by Lord Beaconsfield in accepting the address in a handsome casket of Californian gold and silver of the British residents in that State give every promise that there will be permanent peace in Europe, whilst the statement that the Maharajah of Cashmere will annex Chitral and portions of Bajour and Swat in consequence of the Indian Government requiring him to protect those frontiers against aggression is equally promising for a satisfactory solution of the Afghan difficulty. Cashmere, although an independent raj, is under obligations to Great Britain for having put down anarchy there, and nominated the present ruler; with this nomination the people are thoroughly satisfied, and the maharajah has ever shown himself appreciative of the honour done him, and has displayed great energy and intelligence in wielding the power entrusted to him. The British by the arrangement mentioned obtain all the influence necessary in the districts without direct interference.

Debentures, whether of mining or other industrial enterprises, have usually been considered a fair security by capitalists, but circumstances have happened in consequence of the great commercial depression which may alter this opinion. The point is raised by a shareholder who was unable, though not unwilling, to subscribe for debentures in the Almada and Tirito Company; and, as the solicitor and general manager of that concern has had great experience in companies' law, his opinion, published through the *Mining Journal*, would be of value. The company desired to issue 8300*l.* worth of debentures, having a first charge, as the shareholder understands, upon the entire property and assets of the company. Had the entire 8300*l.* been raised there can be no doubt that had the property been subsequently wound-up and sold for 8299*l.* the debenture-holders would have been entitled to distribute the whole amongst themselves, and the shareholders would not have received a penny return. But the 8300*l.* would, as Mr. William Martineau (the chairman) states, have permitted the exploration of the mine in depth, with good hope of success. These explorations might, possibly, have restored the mine to the dividend condition, and enabled the shareholders to pay off the debentures and continue to prosper; but this really does not affect the question under the present circumstances. Of the 8300*l.* which it was attempted to raise only 2030*l.* could be obtained, and the question is whether the shareholders are not, therefore, entitled to 6270-8300ths of the property and assets in the event of a wind up, the debenture-holders receiving the remaining 2030-8300ths. That the Court of Chancery would take this view is thought very probable, since otherwise it would be quite easy for directors and officers of public companies to get a resolution passed when a company's finances are embarrassed, subscribe for a few debentures, and in the event of the shareholders failing to respond take over the whole property for a merely nominal sum. It is, indeed, stated that instances have already occurred in which the debenture holders have taken the entire assets, although they had subscribed but a small percentage of the debenture capital created. As this is a question which affects not only the company mentioned, but also nine tenths of the mining and industrial companies which have debenture capital, it should at once be put on a clear and intelligible understanding; and, as it really determines whether debentures are desirable securities or worthless, it is to be hoped the matter will be fully discussed by some of the legal correspondents of the *Mining Journal*, should the views of Mr. J. Arthur Morgan upon the subject not be in accord with their own.

The message of President Hayes to the Senate of the United States indicates the absolute necessity for Great Britain to bestir herself to maintain her position in the markets of the world. Great Britain has at least as great manufacturing facilities as the United States, and at present wages and raw material are cheap and labour abundant; all that is required is to convince capitalists that their money will readily be employed in the business for which it is subscribed, and plenty of funds will be quickly forthcoming. President Hayes' message, which was in reply to a demand for better postal and commercial facilities between the United States and South America, points out that the unprecedented balance in favour of the United States, arising from the general trade, prevents the outflow of gold, and protects public interest there at a time when commercial security is indispensable, adding that the agencies through which this change has been effected should be strengthened. The introduction of the products of the United States into new markets ought, he says, also to be promoted, since the demand for them was such that, with equal commercial facilities, they need have no fear of competition in any quarter. The President continues, that with the resumption of our financial equality with other nations it is most important that the present commercial condition of the country be made permanent, and that the rapidly increasing export trade be not allowed to suffer for want of the means of communication with other countries. It is for the producers and capitalists of Great Britain to show by their energy and enterprise that they are still able to hold their own against the world.

Japan was recently spoken of as a field for British enterprise in connection with coal mining, but there seems likely to be some little delay in the matter. A telegram from Yokohama, *via* San Francisco, dated Nov. 26, authoritatively denies the existence of a secret treaty between America and Japan, and pronounces the rumour an entire fabrication. This is so far satisfactory; but there seems to be a hitch in the negociations respecting the Takashema Coal Mine, for Messrs. Jardine have had to enter an action against Goto Shojiro in the Japanese courts. Great interest is taken in the case, as a large amount is said to be involved.

The necessity of a good supply of coal wherever it is proposed to carry on industrial operations is acknowledged, and certainly nothing tends more to the success of a new settlement than cheap fuel; it will, therefore, be learned with pleasure that the Agricultural Superintendent of the Livingstonia Mission—the little colony established on the banks of Lake Nyassa—has already been enabled to announce two important mineral discoveries, the one of gold—although thus far no deposits promising to be remunerative have been met with—and the other of coal, which appears to exist in abundance, for the two seams discovered are 7 ft. and 3 ft. thick respectively. Further details of the mineral researches will be looked forward to with much interest. English capital will, no doubt, be asked for shortly to develope the coal deposits, and to encourage further exploration for metalliferous minerals, although the prospectors will scarcely require the instrument asked for in the letter referred to in the Postmaster-General's report, just issued, as having been addressed to him from—"Tennessee, Oct. 4, 1877. Dear Sir,—I want you to do me a kines to had this to some good watch maker and tell him to see if I can by a instrument to tell where gold or silver is in the ground or if there is a instrument maid to find mettel—gold or silver—that are in the ground. If it will attrack it—A instrument for that perpos—I understand there are sutch a thing made. If so, be pleas tell me where I can by one and what it will cost me—It can be sent to New York to —— where I can get it—I want to get a instrument to hunt gold & silver—You will pleas write to me as I think if there are sutch a thing maid I could get one in your country—I send you a stamp."

Port Philip and Colonial, ½ to ⅝; the advices to Oct. 30 show a profit on the four weeks to date of 1304*l.* 14s. 8d., which, added to previous balance, made 3167*l.* 14s. 2d. available. The amount divided between the two companies was 1800*l.*, the Port Philip Company's proportion being 1170*l.* The balance carried forward was 1367*l.* The telegram from Melbourne, Dec. 13, states that the gold obtained from the company's and tributers' quartz for month ending Dec. 4 left a profit of 1238*l.*; remittance, 700*l.*

St. John del Rey, 275 to 285; the dividend of 15 per cent. for the half-year was sanctioned at the meeting, on Wednesday. Don Pedro, ⅜ to ½; the report states that during October 1701 oits. of gold, worth 722*l.* 18s. 6d., was obtained from 1870 tons of ore, at a cost of 2247*l.* 2s. 11d. This includes about 150*l.* of extraordinary cost. The last telegram from Rio advised 2650 oits. as the produce for November. Santa Barbara, 1⅜ to 2; the advices from Pari (Nov. 14) show an estimated profit for October of 823*l.*

Almada and Tirito, ⅜ to ½; the report presented at the meeting, to-day, states that the accounts for the half-year ending June show (after deducting 583*l.* interest on debentures, and 53*l.* for depreciation on schooner Providencia and on office furniture, also charging exploration and other work done to revenue account) a loss of 2721*l.* The directors consider the most important points at present are the workings in the Mina Grande, below the tunnel level, and particularly at the 12 and 15 fathom levels. The ore here has less lead and more copper and silver in depth; recent assays have been satisfactory. They think good results probable in the 42 fathom level, in Tirito, which is the only point the managers see worth attention. Mr. Clemes is buddling the refractory ore in the old men's burrows with fair chances of success, the ore being concentrated from $15 to $25 up to $45 per ton of 18 cwts. The joint reports of N. C. Morcom and J. H. Clemes state that the Mina Grande has at present a very fair appearance, and the shoot of ore may continue, but dependence should not be placed on it, taking Tirito as an example. The quartz lode does not look healthy, but exploration may lead to discoveries. They suggest that Tirito bottom should be vigorously sunk out of earnings if any new ore body of value be again found, if not then it is their opinion that the bottom of Tirito does not hold out sufficient inducement for the raising of fresh funds wherewith to explore it. They consider the Tirito is practically a surface mine, but not to sink will be to abandon a costly and valuable plant. Any expenditure in the Tirito shaft they regard as speculative, as no ore body is known to exist, and all must be done with a view to search for possibilities in depth. The schooner will be sold to save heavy expense to the company, and the policy must be to extract as much money as possible from the ores in sight, and to restrict explorations to those points which can be examined without great expense. The directors' report was adopted by the meeting, which appeared to be of opinion that more capital ought to be raised.

Richmond, 10⅞ to 11¼; the expected telegram from the mine was duly received on Tuesday. Two furnaces were started, and all was working well. The refinery was to start on Thursday (yesterday). The report of the manager (Nov. 27) states that the exploratory work had been going on as usual. They have started a cross-cut to connect with the rise above the 300 for ventilation and exploration. The reference to the furnaces is superseded by the telegram above mentioned. With reference to the furnaces the Eureka Sentinel states that from every aspect they indicate much forethought and study, and a thorough practical knowledge of furnace construction. Their compactness, symmetry, and the ease and readiness with which the ore and fuel will be delivered to the feeders show that every want is met, and that they are especially intended to consume the immense ore bodies now opened up in the Richmond Mine. The ore dumps at the mine are full to overflowing, and ore is being heaped on the yard for want of other space.

The latest advices from Arizona state that at last something is to be done to open an Arizona Mine on the Comstock principle—deep shafts and extensive underground workings. Arrangements have been perfected, and machinery and timber purchased, to sink a shaft 1000 feet deep on the Silver King Mine. It is to be a perfect working shaft, with three compartments, and in every appointment is to be after the new Requa shaft on the Comstock. The deepest workings now in the Silver King are less than 300 ft., where now the incline ends. With this improvement the old King ought to show richer treasures than ever, and they should be able to extract them in a miner-like way, and upon an economical basis.

Blue Tent, 2½ to 3; some washing has been carried on according to last advices, but sufficient rain has not yet fallen to enable the superintendent to resume steady work. Placerville, 2⅛ to 2¼; a telegram from the manager received this week announces that the shaft is down 400 ft., and a cross-cut commenced towards the lode. A large quantity of high-grade ore, which is broken in the levels, can now be raised to surface.

Hultafall, 3 to 3⅛; the agent states the lode in the mine is very wide, and composed chiefly of lead and blende, intermixed throughout. The shaft is down 25 fathoms. No stoping has been done, but they are driving each side of the shaft. The ground is holed to surface, and lead and blende to be seen all the way. There are already many thousand tons of mineral in sight.

Lead mine shares have been altogether neglected, and it is quite impracticable to effect sales at current quotations, which are entirely nominal. Van, 17 to 18; the only change reported from the mine is in the 90 west, where the end has improved for lead. The frost is intense, and interferes somewhat with the surface work. Mineral Corporation of Great Britain, 10 to 11; the agent's report is particularly encouraging. The No. 1 adit end in Hafna Mine is looking better than for some time past, and the sulphur mundic (bisulphide of iron) is giving place to lead ore (sulphide of lead)—a very common change in lead districts—and which has given rise to the miners' saying that "mundic rides a good horse." In No. 2 adit there is a very promising lode, No. 3 is without change, and in No. 4 adit the lode has improved, as was anticipated, and there is promise of a good lode. At surface everything is frozen up, and nothing doing. The Corporation have now commenced operations at another mine—the Great D'Eresby—by costeaning, and have broken some nice lead from the back of two lodes. Capt. Bennett now recommends a cross-cut near the Valley sett, which would intersect the blende lode so highly spoken of in D'Eresby Mountain Mine; he would then drive north and south on the course of this lode to intersect the east and west lodes.

Pateley Bridge, 1 to 1½; the report of the meeting appears in another column. West Pateley, 1¾ to 2½; some considerable improvements have taken place.

Subjoined are the closing quotations:—

Assheton, ⅛ to ⅜; Devon Great Consols, 1¼ to 1¼; East Caradon, ⅛ to ⅜; East Van, 17⅛ to 2⅛; Glenroy, ⅜ to ⅝; Great Laxey, 17 to 19; Leadhills, 1⅞ to 2⅛; Marke Valley, ⅝ to ⅞; Parys Mountain, ¼ to ⅜; Pateley Bridge, 1 to 1⅛; Penstruthal, ⅛ to ¼; Roman Gravels, 6¼ to 6¾; Tankerville, 2¼ to 3; Tincroft, 7 to 9; Van, 17⅛ to 18⅛; West Chiverton, 1 to 1¼; West Pateley, 1¾ to 2¼; Wheal Grenville, 2 to 3; Almada and Tirito, 3-16ths to 5-16ths; Birdseye Creek, ½ to ¾; Blue Tent, 2¾ to 3; Cape Copper, 29 to 30; Cedar Creek, 1-16ths to 3-16ths; Chontales, ⅜ to ⅝; Colorado United, 1¼ to 2; Don Pedro, 7s. to 9s.; Eberhardt and Aurora, 3⅛ to 3⅜; Exchequer, ⅛ to ⅜; Flagstaff, ¼ to ⅜; Frontino and Bolivia, 1⅞ to 2⅛; Hultafall, 3 to 3⅛; Javali, 4s. to 6s.; Kapanga, ½ to ¾; Last Chance, ⅛ to ¾; New Quebrada, 1⅜ to 1⅝; Pestarena, ⅛ to ¼; Placerville, 2⅛ to 2⅜; Plumas Eureka, 2⅝ to 2⅞; Richmond Consolidated, 10¾ to 11; St. John del Rey, 275 to 285; Sierra Buttes, 1⅛ to 1⅞; South Aurora, ⅛ to ¼; United Mexican, 2¾ to 3¼.

At Truro Ticketing, on Thursday, 2369 tons of copper ore were sold, realising 6812*l.* 1s. The particulars of the sale were—Average standard, 88*l.* 17s.; average produce, 6⅜; average price per ton, 2*l.* 17s. 6d.; quantity of fine copper, 149 tons 9 cwts. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Nov. 21	2933	£ 84 14 0	7⅝	£3 14 0	9s. 8½d.	£48 12 0
Dec. 5	1617	86 4 0	7½	3 13 6	9 10½	49 3 0
Dec. 19	2369	88 17 0	6⅜	2 17 6	9 0	45 0 0

Compared with the last sale, the decline has been in the standard 3*l.*, and in the price per ton of ore about 3s. 10d.

The Rio Tinto Company announce that the funds requisite to meet their Seven per Cent. drawn Bonds and their Five per Cent. and Seven per Cent. Coupons, due 1st prox., have been lodged at their bankers.

*** With this week's Journal a SUPPLEMENTAL SHEET is given, which contains: Original Correspondence: Gold Mines in India—City of Glasgow Bank (E. Harris); the Lead Trade; Tin Deposits of Australia (S. L. Bensusan); Henry Bell and Co.); Our Future Tin Industries (S. L. Bensusan); the Coal Fields and Coal Production of Germany; Mining in Canada—Silver Islet; Depreciation of Silver; Mining Industry—Strikes (W. Salmon); Boring Machinery—the Eclipse Drill (Hathorn and Co.); Rock-Drilling Machinery (E. Edwards, H. Williams); London Coal Supply (W. J. Thompson); Gold in Wales—the Clogau; Cardiganshire Mines—Northern Division; North Cardiganshire; Bodidris Lead Mine; Devon Silver Lead Mine; Mining on the Borders of Devon and Cornwall—D'Eresby Mountain Mine—Substitute for Gold—Meetings of the St. John del Rey, Ravenscliff, Virneberg, Sentein, Pateley Bridge, Tolima, Blue Hills, Penhalls, South Darren, Wheal Grenville, and Russia Copper Companies, &c.

LEAD MINING.—The expected improvement in the price of lead ore should have a great effect upon the market values of Roman Gravels, Minera, Great Holway, Great Laxey, and a few others. Roman Gravels is reported to be looking well, whilst the progress at Great Holway is good, and its prospects splendid.

ENGLISH AUSTRALIAN GOLD MINE.—By this mail it apears that the return of gold for the month realised 229*l.* The New Era Company (late Ferron's), adjoining the English Australian Mine, and on the same lodes, had returned for the month 241 ozs., and had paid another dividend.

PANDORA.—The report of the general meeting will be found in another column, from which it will be seen that the mine is looking exceedingly well. We are also able to state that all the 700 shares lately offered have been taken, and part of the remaining 1000 have been applied for.

SENTEIN MINING COMPANY.—We called the attention of our readers a short time ago to the report of Mr. John Lean on this property, and now publish that of Mr. John Edwards, who is in charge of the works. From the statement made by the Chairman at the statutory meeting, held on Dec. 12, which will be found in another column, it would appear that one of the prizes among the many blanks in the great industry of mining has fallen to the lot of English enterprise; and it will give us great pleasure to chronicle the future success of this undertaking, which seems from the results already accomplished to be placed beyond all reasonable doubt.

TAN-YR-ALLT (Cardiganshire).—Notwithstanding the very low price of lead, this little mine continues to pay its way, and is being opened up in a thoroughly practical manner, keeping good reserves of ore untouched, and limiting the sales to just sufficient to keep the mine going and open up the most promising points. It is very creditable to the dresser that, notwithstanding the very severe weather, he has been able this week to send off another parcel.

GREEN HURTH MINE.—The rich vein No. 1, which has been so productive here in the upper or Scar limestone, about 4½ fms. in thickness, suddenly became disordered by some other vein or veins intersecting it going south near the air and pumping shaft. Much trouble and expense was caused by the attempt to find the vein again through or beyond these intersections. At length it was resolved to sink down into the next limestone, and a sump is now down about 6 fms. near to a place where the vein was very rich, worth fully 10 tons of ore per fathom, and in one part contained a solid rib of pure galena 3 ft. wide. The indications in sinking are of the most encouraging character, every string or branch cut containing lead ore, and a branch has been cut this week in a hazle post, worth 1 ton of ore per fathom. The hade of No. 1 vein will bring it into the shaft or sump by-and-bye, when a mine equal to anything hitherto seen at Green Hurth is expected. It is worthy of remark that only 6*s.* per share has been called on 6400 shares, and dividends to the amount of 42*s.* per share paid, besides putting down a plant in machinery, houses, roads, and cottages to the value of 2000*l.* or more.

MORESBY COAL COMPANY.—This company have just reached the Whitehaven main band coal at their winning near Walkmilli The seam is over 8 feet in thickness, and the quality of the coa is reported to be very high. Messrs. Ward and Co. have nearly completed the branch line which is to connect this colliery with the Cleator and Workington Railway,

FATAL WINDING ACCIDENT AT A COLLIERY.—A shocking accident occurred on Monday at the Bellfield Colliery, near Kilmarnock, whereby the pit-head man, James M'Mall, and his son, aged 10 years, were instantaneously killed. M'Mall, accompanied by his son, went down the pit in order to feed the horses. After attending to the horses in the main seam he gave the signal for the cage to be raised to the pit-head. The cage stuck fast in the shaft. M'Mall thereupon signalled to the engineman to lower the cage. The engine was reversed, but the cage still remained fast till the wire-rope had coiled upon it with a weight of about 30 cwt. when the cage suddenly gave way and, snapping the rope, fell to the bottom of the shaft, a depth of about 50 fms. The occupants of the cage were fearfully mangled.

BOWING'S PATENT FILTER PRESS COMPANY.—It has been pointed out to us that there was a slight inaccuracy in our report of the proceedings at the meeting of this company. The resolution for the adoption of the report and accounts was moved by the Chairman, and seconded by the Hon. F. C. Drummond, after which, after a long discussion, the following resolution was proposed by Mr. Jackson, seconded by Mr. Bowser, and carried:—"That the report and accounts be received but not adopted, and that the meeting be adjourned for three months, from Dec. 5, 1878, the board in the meantime to confine their attention and outlay to the completion of the Stoke and Hull presses, but if those presses, or either of them be successfully completed at any date previous to the expiration of the three months that the board summon the adjourned meeting of the shareholders."

ZINC ORES.

ARMAND FALLIZE,
INGENIEUR-CIVIL, A LIEGE (BELGIUM),
BUYER
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LEAD ORES.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Dec. 13	Minera	85	£ 9 11 0	Nevill, Druce, and Co.
—	ditto	26	9 7 6	Adam Eyton.
—	ditto	26	9 7 6	Sheldon, Bush, and Co.
—	ditto	55	9 7 6	ditto
—	ditto	22	9 7 6	ditto
—	ditto	9	9 10 0	Walker, Parker, and Co.
18	Grogwinion	100	9 7 6	G. Burr.
20	Court Grange	11	14 4 0	E. C. Goodhart and Co.

BLENDE.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Dec. 13	Minera	50	£ 3 6 6	Villiers Spelter Co.
—	ditto	50	3 6 0	ditto
—	ditto	35	3 9 6	ditto
—	ditto	50	3 11 6	ditto
—	ditto	40	3 14 0	ditto
—	ditto	25	3 1 6	Vivian and Sons.

TIN BARILLA SOLD IN LIVERPOOL.

Date.	Tons.	Price per ton.	Purchasers.
Dec. 18	3¼	£29 17 6	Bolitho and Sons.
		29 17 6	Daubuz and Co.
		29 17 6	Calenick Company.
	7¼	27 10 0	R. R. Michell and Co.

COPPER ORES.

Sampled Dec. 4, and sold at the Royal Hotel, Truro, Dec. 19.

Miner.	Tons.	Price.	Mines.	Tons.	Price.
Devon Great Consols	106	£1 4 6	Marke Valley	60	£1 6 6
ditto	88	1 14 0	ditto	56	2 4 6
ditto	83	1 15 6	ditto	53	2 3 6
ditto	81	1 6 6	ditto	50	3 14 0
ditto	73	1 15 6	ditto	31	4 9 0
ditto	71	1 13 0	Hingston Down	81	2 0 6
ditto	66	4 13 6	ditto	74	1 17 6
ditto	65	4 10 0	ditto	52	2 3 6
ditto	64	1 8 0	Glasgow Caradon	70	3 19 6
ditto	44	1 10 6	ditto	67	4 4 6
ditto	39	1 8 0	ditto	63	3 10 6
South Caradon	80	4 5 0	Gawton	85	2 8 6
ditto	61	0 13 0	ditto	81	1 8 6
ditto	46	9 18 6	ditto	27	2 7 6
ditto	47	9 19 6	Wheal Crebor	50	1 13 6
ditto	43	3 5 0	ditto	46	1 17 6
ditto	42	3 14 0	Phœnix	45	3 5 0
ditto	41	5 3 0	ditto	43	6 9 0
ditto	40	2 15 6	Bedford United	60	3 13 6
Marke Valley	81	2 15 6	East Caradon	30	4 17 0

TOTAL PRODUCE.

Devon Great Con.	782	£1596 14 6	Gawton	193	£ 300 13 6
South Caradon	402	1944 3 6	Wheal Crebor	96	170 0 0
Marke Valley	311	811 12 0	Phœnix	88	423 12 0
Hingston Down	207	415 17 6	Bedford United	60	220 10 0
Glasgow Caradon	200	783 8 0	East Caradon	30	145 10 0

Average standard ..... £ 88 17 0 | Average produce 6⅜
Average price per ton £2 17 6
Quantity of ore ..... 2369 | Quantity of fine copper 149 tons 19 cwts.
Amount of money £6812 1 0
LAST SALE.—Average standard ..... £86 4 0 | Average produce 7⅛
Standard of corresponding sale last month, £ 84 14 0—Produce, 7⅛

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
Vivian and Sons	230½	£ 541 2 6
Grenfell and Sons	331¼	1039 1 10½
Nevill, Druce, and Co.	220	315 16 3
Williams, Foster, and Co.	9·3½	2934 12 7½
Mason and Elkington	374½	870 7 1½
Charles Lambert and Co.	290½	1109 0 7½
Total	2369	£6812 1 0

*** The complete Ticketing will be published in next week's Journal.

Notices to Correspondents.

*** Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

Sir,—I am interested in a mine, and have been accustomed to have the water which flows through my neighbour's sett for the purposes of condensing, dressing, &c., but now the water is scarce my neighbour after using it has fixed machinery to lift it back again, and thus monopolises nearly the whole of it, to my serious inconvenience. Can any of your readers inform me the custom or law on the subject? Is not my neighbour after he has once used the water obliged to allow it to take its original course, and let it flow into my sett without its being used over and over again, or can he consume the whole of it should he wish to do so?—T. W.: *Bodmin, Dec.* 18.

Engineering.—"H. M." (Leeds).—The paper noticed will hereafter form part of the Transactions of the Society of Engineers. As you are connected with engineering, your best course would be to become a member of the Society, before which very useful practical papers are constantly read. The Secretary, Mr. P. P. Nursey, 6, Westminster Chambers, Westminster, will give all necessary information as to mode of admission and list of members in district to assist you to obtain the personal knowledge and signature to the recommendation for admission.

Mining Atlas.—Can any reader inform me if there is in existence a complete mining atlas. I have a part of Spargo's Mining Atlas, but it, though a step in the right direction, is not nearly comprehensive enough. The atlas I speak of should be based on good geological maps of all the mining countries and districts throughout the world, showing run of lodes, situation of mines, with maps and plans of the most celebrated, also furnished with copious letterpress, descriptive of geological formations, minerals found, methods of working, with statistics of production, &c. Such a work, to be thorough, could best be undertaken by the Geological Survey, and I recommend it as a great desideratum to all those interested in mining. In reading reports of mines in your valuable Journal I constantly feel the want of reference to reliable maps and plans.—T. W. D.: *Glasgow, Dec.* 13.

Received,—"M. R. C." (Glasgow)—"A South Yorkshire Miner," on the proposed Miners' National Relief Fund, is too personal—"J. S. L."—"R. C. S." (New York)—"Observer" (Rock Drills) should write in a different spirit. It is not the way to promote genial feeling to call those who may entertain different opinions to himself "clowns of viciousness"—"T. J. P." (New York)—"J. T." (Liskeard)—"Shareholder" (Bristol): The meeting was fully reported, and appeared in the Journal of the following week.

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, DECEMBER 21, 1878.

HIGHER TECHNICAL EDUCATION FOR ENGINEERS AND MECHANICS.

The present unsatisfactory state of the engineering and other industries of the country has led to the publication of an able and practical letter from Prof. Armstrong, of the Yorkshire College of Science, Leeds, in which he asks the question—"Are we to be beaten by foreign competition?" It may be said that when noticing the successful competition in many markets of the Belgian, German, and American manufacturers against our own it has been usual for many persons to meet the allegation with a direct and positive negative, whilst the leaders of the workmen have maintained that the superiority of the British operative was too fully established and admitted to be in any way endangered by the cry of equal, let alone superior, efficiency on the part of those engaged in similar pursuits abroad. But the experience gained even during the present year, and the observations made in the engineering and mechanical departments of the Paris Exhibition by our ablest men, prove that something may be profitably learnt from the foreign producer, and that it would be foolish in the extreme to hold him so cheap as we have been in the habit of doing. At the present time if we go to any of our great iron and steel districts we find that those industries are suffering from foreign competition, yet we are informed by Mr. Kitson, of Leeds, one of the largest manufacturers in that town, on behalf of the employers as well as himself, that they were offering to Government, railway companies, and private individuals their products at the cost at which they issue from the manufacturers. Notwithstanding this Belgian iron and springs, and American tools, are being sold in our own markets, as well as in those that we not very long since almost exclusively supplied, whilst it is not so very long since that an order was given to the Cruezot Works for 30 locomotive engines for Russia, which under ordinary circumstances one would have thought could have been made cheaper in England, more especially as at the time our own makers were very far indeed from being busy. Ships are also now being built and engined in France that might reasonably have been expected to have come to the Clyde, with its many advantages and high reputation.

It has been suggested as a reason for such orders being taken in France that in England the men work less hours, receive more wages, show less earnestness whilst at work, are hampered by trade legislation, to all of which the foreign workmen is in a very different position, so that consequently labour is so much cheaper. But, along with Professor Armstrong, we do not see that the difference in the number of working hours and cost of labour account for all the phenomena of the situation, but to some extent it may be traced to other causes. It is admitted that wages are lower in France than in England, but we are told that that is more than counterbalanced by the increase cost in the production of the manufacture of the former. In America, however, no such difference exists, for wages are higher there than with us, yet she is able to supply us with certain products cheaper than we can make them at home. So it would appear that there is something beyond the mere difference in wages, working hours, &c., to account for the position we occupy with respect to certain goods for which we find competitors in our own markets, as well as abroad, although we have certain advantages with respect to the raw material, and long experience in production. According to Professor Glover, our deficiency is in the superiority in skill and scientific knowledge enjoyed by the French and some other workmen. He considers that the scientific defect under which we labour is in the main chargeable with, and responsible for, the more serious aspects of the present condition of things, and was sufficient by itself to account for it. The strongest argument in favour of this proposition is that every one of those nations that have thus beaten us attribute its success to that cause. The professor says, and his view will be generally accepted by practical men, that "so far as finish and general mechanical aptitude are concerned the British workman yet stands unrivalled before the world; but, unfortunately, finish and elaboration do not necessarily mean either accuracy in measurement, or efficiency of motion."

An opinion to the same effect, but much stronger, was given by no less an authority than Mr. Scott Russell, who writing just after the first French Exhibition says—"It was that exhibition that gave the nations, and especially England, a final lesson. We there learned not that we were equalled, but that we were beaten, not on some points but, by some nation or other, on nearly all these points on which we had prided ourselves." In following the matter up Mr. Russell drew attention to the marine engines of Dupuy-de-Lôme, which were not superior in finish and truth of workmanship to any English production, but nevertheless "showed such unmistakeable indications of forethought, practical wisdom, and provision for economy, as to leave no doubt that they would consume less fuel, do more work, endure longer, and be less liable to accidents than our own engines." But the superiority of the French does not rest on the marine engines, for Mr. Russell, with respect to their land engines, says—"They were contrived in such a manner as to turn the steam produced to better account than our own engines, so as to get more power out of a given quantity of fuel, and in a higher ratio than the greater cost of our fuel exported to France." No doubt one of the great problems to be solved with respect to steam engines is to obtain a much larger amount of power from fuel than we do at present, and it would appear that in this respect France is rather ahead of us. It is also anything but flattering to our mechanical engineering prestige to be told by Mr. Russell that as to the large iron manufactures of Belgium, France, and Germany, which were all our own, "we found ourselves rivalled, excelled in size and quality, and competed with in price."

There are not very many, we believe, connected with our engineering and mechanical industries who are at all aware that we are so far behind as we really are, but the witnesses we have called will cause them, it is to be hoped, to look the matter boldly in the face, and to enlist the entire body in an effort to make up for the time that has been lost, that we may resume with confidence the superiority of which we could formerly boast, so that the country which first produced the steam-engine, the locomotive, Bessemer steel, and hundreds of other kindred inventions that are now in active operation in all civilised nations, shall not be found behind those she has instructed. Scientific knowledge is an essential that cannot be dispensed with in the making of the engineer who is to be at all original and get out of the mere mechanical groove, and the student who wishes to make progress and arrive at anything like proficiency must give his attention to applied science.

But something should be done by the engineers we have, and those who are placed at the head of departments in our leading establishments should endeavour to impart what scientific knowledge they have to the young men and others under them, for much depends upon the foremen. This was plainly pointed out a few days ago on the occasion of the anniversary dinner of the Leeds Association of Engineers and Foremen. The chairman—Mr. James Kitson—said the question of foreign competition had been brought under his notice in connection with the Paris Exhibition, and it was "certainly astounding to see how every country in the world had shown itself competent to supply all the material in which England had been in the habit of supposing it was paramount or superior. At the Creusot Works they brought iron ore from the North of Africa, worked it up with inferior coal producing steel at exceedingly low prices, and completely driving out any chance of English competition in France. What was the cause of this? In the first place, the works in France were directed by a technical skill—the foremen were instructed in a superior manner to the foremen of this country, and worked eleven hours a day at an exceedingly low price." The testimony we have called shows plainly that our engineers have a good deal to learn before they can be placed in the same category as those on the Continent. The subject, indeed, is one of the greatest interest to the country at large, and the lesson that may be derived from a study of it cannot be over-estimated. It is certainly anything but pleasant to be told that in some branches of trade on which we have long prided ourselves as being pre-eminent we are actually behind our continental neighbours, and still losing ground, and that our downward progress can only be arrested by the higher scientific education of our young engineers. They should, therefore, at once set about the task of overcoming the difficulties that have been shown to be in their way of becoming perfect in their profession, and which can only be accomplished by sheer force of constant study, practice, and self-denial.

MINING LEGISLATION.

At the Miners' Conference at Manchester, on Tuesday, the inaugural address was given by the president—Mr. A Macdonald, M.P. He commenced by alluding to a most pertinent question put in what he said was a leading Journal—"Are we never to hear the end of legislation for the improvement of the condition of the miners? Is this to go on?" His answer, he said, was—"Yes, it is to go on." No doubt, so long as Mr. Macdonald has any power amongst the mining body every session will see some attempt made to hamper the action of the owners of collieries by legislation ostensibly for the purpose of affording greater security to those who have to earn their bread by getting coal, but in reality to show the power of a few leaders, to interfere with capitalists and employers, and so keep them as far as they can in a state of antagonism with their employees. So far as legislation has gone it has been beneficial, but there is a probability of not leaving "well alone" by still further action in one direction that will result in many instances in increasing the cost of getting coal, to the disadvantage of the miner himself. As a reason for still further and constantly changing the mining laws, Mr. Macdonald said the mines were constantly changing, and in proof of this referred to the state of collieries 50 years ago. This to some extent only is true, yet if great changes have taken place in the course of 50 years, that does not go to show that changes are so constantly taking place that every year must see fresh legislation. It is true that collieries are now deeper than they were half a century ago, and that they are worked to a far greater extent, but then new collieries are constantly opened out, whilst old ones are being closed in consequence of being worked out. In these new collieries much greater precautions are taken in opening them out in such a manner as to give a greater amount of safety to the persons employed in them than was formerly the case, whilst science has also done much of late years in providing securities against accidents, so that to say constant legislation is needed owing to the changes which are constantly going on in mines is simply absurd. As we have many times pointed out, one of the greatest dangers in many mines is bringing down the mineral by blasting. But in many districts where gas is constantly met with the men refuse to give it up because they can earn much higher wages by it than by wedging. We quite agree with Mr. Macdonald when he says the remedy was the total prohibition of powder and other explosives in fiery mines. But he evidently knew there were many present who were opposed to his view of the subject, for he "challenged his friends around him who might not agree with him to take up the question, and boldly pronounce upon it." With regard to firemen, the president alluded to what had been said about that body if the members of it were to be educated men, and acquainted with the laws of gases. We certainly do not see the necessity for having educated men—mere theorists—to occupy such situations, and so add to the cost of working mines, for a practical miner, in our opinion, would be better qualified for the post, seeing that there is no difficulty in detecting the presence of gas in the working places of a colliery. Mr. Macdonald also spoke in favour of a Minister of Mines. He was also in favour of having more shafts, so as to allow of the gas more easily exuding. In fact, were all Mr. Macdonald's views carried out the price of coal would be much higher than it would otherwise be, whilst mine-owners would have the greatest difficulty in having any control over their own property, and without benefiting the working miner in any way.

WAGES IN SOUTH WALES.

We can quite understand that it is never a very pleasant thing for a working man to have to accept reductions of wages. Even with good management a working man's income is not at all an excessive one, and its reduction, even to the extent of 1s. to 2s. per week, can never be a welcome event. But, whether we like it or no, we have all of us to submit to the inevitable; and in the present state of business affairs in South Wales, wages will probably have to be reduced from the sheer force of uncontrollable circumstances. The additional shock which credit has recently received through the regrettable collapse of the West of England and South Wales District Bank is little calculated to improve the industrial situation; nevertheless the working miners of South Wales seem to show a total disregard of the circumstances by which they are surrounded, and to be resolved to fight out the wages battle to the very last extremity. Thus, on Friday delegates representing 61 collieries and 23,000 miners met at Merthyr, and unanimously resolved to refuse to accept the fresh reduction of 5 per cent. required by the masters. The depression existing in almost every branch of trade was admitted by the delegates, but it was conveniently attributed to the policy pursued by her Majesty's present administration; and the gathering gave the finishing stroke to the absurdity of its proceedings by calling for an early dissolution of Parliament.

Although we are tempted to smile at all this, the tone of the Merthyr meeting of delegates makes us sad upon more mature reflection. We say it makes us sad, because the delegates and their constituents appear to have, after all, learnt no practical lesson from the stern experience of the last few years. What has brought South Wales to its present lamentable condition? We unhesitatingly affirm the mischief has been wrought by the violent fluctuations which have taken place since 1870 in the markets for labour and raw materials. The mainstay of South Wales ten years since was its large production of railway iron on American account. For the purposes of our argument we are once more compelled to recount the old story and recall the facts that the rapid rise in labour, coal, iron ores, &c., in 1870, 1871, and 1872 utterly disorganised the South Wales iron trade, and carried the price of rails to an extravagant level. For a time all went swimmingly for the Welsh ironworker and coal miner. There happened to be an undue inflation of the American railroad interest, and hence there was a sharp and brisk American demand for rails, which even the expanding iron trade of the United States was unable to altogether supply. But this state of things could not last for ever. In 1873 the bubble burst, and the inflation collapsed. All through 1872 and 1873 American ironmasters had been steadily increasing their means of production, and the decline in the American demand for our railway iron in 1874, 1875, and 1876 was accordingly very sharp and rapid. Since 1876 it may be practically said to have ceased altogether, and we maintain its cessation was the main cause of the industrial stagnation which has since afflicted South Wales. The coal trade of South Wales has always been largely dependent upon the iron trade of that district; the prosperity of the former is, in fact, intimately associated with the activity of the latter. Reductions of wages have been made already both in the Welsh coal and iron trades, but the depression is obstinate and deep-seated, and cannot easily be removed. It was only the other day the Rhymney Iron Company closed one of its pits, and this very week a petition has been presented for the liquidation of the Blaenavon Iron and Coal Company. The oracles of Merthyr are apparently blind to such circumstances as these. We fear their wilful stubborness will only increase the misfortunes and sufferings of their constituents.

The Transvaal as a Field for Enterprise.—The valuable notes from the Royal Geographical Society's Journal contributed by Chev. Frederick Jeppe, F.R.G.S., with a few words of advice to persons wishing to emigrate, has been reprinted by Messrs. S. W. Silver and Co., of Cornhill. An admirable little introduction has been prefixed from the pen of Chev. O. W. A. Forssman, F.R.G.S., who, from the circumstance of his having been 26 years resident in the Transvaal, is enabled to furnish information of much value. He explains not only how to get to the Transvaal, but how to buy land when the emigrant gets there. The pamphlet is well worth perusing.

Manchester Geological Society.—The meeting of members was held on Tuesday at the Literary and Philosophical Society—Mr. John Aitken, F.G.S. (vice-president), in the chair. The papers read included one by Dr. Black on the Chesil beach, near Portland; one by Mr. Rooke Pennington, on a tooth of rhinoceros tichorhinus found near the entrance to the Peak Cavern, Castleton, Derbyshire; and one by Mr. Robert Law, descriptive of some excavations which he had made in a cave near Matlock, and of the finding of animal remains. The remains consisted of the bones of the rhinoceros, cave hyena, bear, reindeer, fox, red deer, and bison. Mr. Law's theory (supported by Prof. W. Boyd Dawkins) was that the bones had been at some remote period washed into the cave or fissure where they were found.—Prof. Dawkins presented some notes "On the Discovery of the Mammoth at Northwich," and exhibited a tooth which was found in boring for some new saltworks belonging to the Victoria Salt Company. The importance of the discovery, Prof. Dawkins said, was twofold. First it brought the range of the mammoth as far to the west, in this part of the country, as Northwich—that was further than up to the present time it had been found; and, secondly, it was important because the sand in which it was embedded distinctly underlay the boulder clay. A discussion took place upon the several papers. In the course of the meeting five new members were elected—the Earl of Ellesmere, the Earl of Dartmouth, Mr. C. H. Holden (Bolton), Mr. G B. Wells (Bolton), and Mr. J. Longbottom, of the Norley Colliery.

Exhaustion of Cambuslang Coal Field.—The coal field of Cambuslang, which was let some 25 years ago by His Grace the Duke of Hamilton to Mr. Archibald Russell, coalmaster, Wishaw, and which has long continued to send a large quantity of coal into the market, was on Saturday abandoned by the present lessee, the Flemington Coal Company (Limited), the ponies and underground plant being withdrawn from the pits on that day. This field passed into the hands of the Flemington firm about four years ago, there being then four large pits sunk to the coal, giving employment to several hundred workmen. The mineral wealth of this district having only recently been fully opened up, the Cambuslang pits were for many years the only sale pits in the neighbourhood, and the coal was wrought from three seams—ell, main, and splint—of a good quality. The field extended over a large area of ground, yielding for some time an output of 200,000 tons of coal per annum, and, though it is not completely exhausted, it has now ceased to be workable at a profit. The water was mostly pumped at one of the pits, and the withdrawal of the pumps from this pit will seriously affect the coal fields to the dip of Cambuslang, and probably drown out some of the workings. The operations of the Flemington Company will now be confined to their new coal field at Westburne leased also from the Duke of Hamilton; but the stopping of the older colliery in these distressing times will be a serious matter to the miners in the district, and will add many of them to the ranks of the "unemployed."

Production of Iron.—An interesting table has been drawn up to show the fluctuations in the production of iron throughout the world during the last 27 years. Since 1850, it appears from the figures read at a meeting of one of the societies interested in metallurgy, there has been a very large increase in the production of pig-iron, in response to a demand produced by the growing uses of the metal, and by the formation of vast constructive works in every quarter of the globe. In 1850 the production of pig-iron in the world was believed to be about 4,500,000 tons; last year it had risen to 13,620,000 tons. It is interesting to notice that of the iron-producing countries Great Britain has in the 27 years trebled its production, but in that period the output of the United States has been quadrupled, and that of Germany has progressed in nearly as rapid a ratio. The make of France and Belgium has varied greatly, but in both countries it is now threefold what it was in 1850. In Russia, Sweden, and Austria-Hungary there is now a doubled production; the output of Spain has increased 50 per cent., that of Italy is stationary, and Norway shows a considerable falling off.
—*Pall Mall Gazette.*

Salt Mines.—A deputation representing property owners and the local boards of Northwich and Winsford, the great salt-mining districts, had an interview on Tuesday with Mr. G. Sclater-Booth at Whitehall, respecting the abstraction of brine from underneath the surface of the ground for the manufacture of white salt. Mr. W. Egerton, M.P., and Major Tollemache, M.P., introduced the deputation, the burden of whose complaint was that there was about 1½ million tons of salt produced every year from the brine in these two districts of Cheshire, and that in consequence great damage was done to railways, canals, houses, and every class of buildings, and frequently loss of life ensued. The subsidence of the earth in consequence of the excavations was enormous and alarming. While the owners of the brine wells pumped water for the selection of salt, they at the same time pumped their neighbours' soil away. Great expense was constantly being incurred in repairing and raising sunken roads, gas and water pipes were being damaged in all directions, and property had decreased in value very seriously. The deputation, therefore, asked for the appointment of a commission of enquiry, with a view to adopting legislative enactments. Mr. Sclater-Booth, in reply, said that their case was both interesting and important, and was worthy of every attention and consideration. If the Secretary of State was moved in the year 1870 to appoint a person to examine into the subject from one point of view, there was no reason why it should not be now examined from another point of view. The application was so novel he should be sorry to say he felt competent to send down an engineer to inspect

the place, but he hoped to let the deputation know his decision on the point in a few days. There were other interests to be considered. Some steps would no doubt be taken, but at the moment he could not say what. It was a serious matter, and one for which they could find no precedent in his department. He would see what could be done to satisfy the deputation.

CLEVELAND IRONSTONE OUTPUT IN 1878.—An estimate of the probable output of ironstone at the Cleveland mines has been made, and the result shows that there is a very large decrease from the production of last year. In 1877 the total production was slightly more than 6,289,000 tons; and it is expected that there will be a falling off to the extent of 1,000,000 tons; or, in other words, there is a production estimated for the year of 5,250,000 tons. The decline is partly owing to the lessened production of iron, and partly to the fact that several furnaces have been producing hematite and other iron from imported ores.

GOLD FROM VICTORIA.—The amount of gold exported from this colony in 1878, down to the end of October, has been 277,144 ozs. During the corresponding period of last year the quantity exported was 388,566 ozs.

REPORT FROM CORNWALL.

Dec. 19.—Under any circumstances it would be quite natural to expect some dulness at this season of the year, with Christmas barely a week ahead, and the temporary cessation for business enterprise which it always brings. The present dulness, therefore, all things considered, is hardly more than we had fair reason to anticipate. We cannot expect to see stocks go up until stocks go off a little more quickly; in other words, we cannot expect much of an advance in tin shares until tin recovers more rapidly and to a greater extent; and just at the present season the market is hardly quite so sensitive as it was, or as it speedily will be again, when the approaching holidays are over.

The failure of the West of England and South Wales Bank is having the indirect influence on Cornish affairs which we anticipated—not in its Devon connections, which were thoroughly sound, but in its relations to the failing industries of South Wales, which the aid given by the bank had long enabled to struggle on more successfully than otherwise would have been the case against the adverse conditions of the times. Now that aid has been withdrawn, the blow given to trade in Wales, from the intimate association of many of the interests of the district of the two counties of necessity reacts on Cornwall, though, happily, not to any serious extent.

We have been visited during the past week by the severest weather that has been known for years, and as a consequence there has been some interference with the conduct of mining operations. At Mellanear the frost and snow put an end to all building operations, and greatly hindered the dressing. West Chiverton, too, which has a considerable road carriage, has suffered severely in that respect, besides the delay in the dressing, and the accidents to the machinery, which drowned some of the best mineral ground; though, a sall is working well now, this will speedily be made good. Generally speaking, all masonry work has been stopped, and dressing has been carried on under difficulties for the severe frost and snow, but we seem now to have entered on a term of milder weather.

Every month see further progress made in the development of the use of boring machinery. The Ullathorne drill at New Cook's Kitchen is driving at about three times the speed of hand labour; the mine paying at the same rate, and it is hoped that ere long a drivage of 10 fms. per month will be reached. The Champion will now soon be at work at Dolcoath also, where the rock is harder, and which, therefore, the best of its applicability to the conditions of Cornish mining will be all the more severe.

Among the articles exhibited at the late meeting of the Royal Cornwall Polytechnic Society was the patent alarm and low-water detector of Mr. Henry House, of Bedford. It was found to be impossible to test the apparatus in practice so thoroughly while the exhibition was in progress as was desirable, though it was attached to a boiler at the Falmouth Docks, and its operation shown. The probable value of the invention was, however, fully recognised, and a series of lengthened experiments arranged for. These have since been carried out at West Tolgus under the superintendence of Mr. John Hocking, jun., engineer of the mine, and one of the judges of the Society, and the result is so satisfactory that Mr. House is awarded the Society's first silver medal, the highest recognition the Polytechnic have to give. The judges says:—"The low-water alarm is a perfect success. It is the best without exception that has ever come under our notice, and we shall recommend its adoption for the boilers in Cornish mines. It is fixed so that anyone can see it at work without incurring any risk." Capt. Hancock, of West Tolgus, writes: "It is a splendid thing, nothing can be better. It makes an alarm—a loud one—the moment the water is free from the bottom of the pipe." This award must be all the more satisfactory to Mr. House from the thorough way in which the trials were carried out.

TRADE OF THE TYNE AND WEAR.

Dec. 19.—The movements of shipping have been much retarded of late by the dense fogs on the coast, and shipments of coal, iron, &c., have been to some extent reduced. There is no change to notice in the state of the steam coal trade in Northumberland. Export to the Baltic is, of course, closed, still shipments of steam coal have been moderately fair at the Tyne dock, and the docks on the north side of the Tyne and at Sunderland. Only small shipments of this coal have been made at Blyth, but shipments at Amble have been good. There is also a demand for gas coal, and of course the works supplying this coal are well employed. An attempt has been made to get the Hebburn Colliery to work, the men having made an offer to go in at a reduction of 5 per cent., but the masters have not accepted this offer. The demand for house coal has improved, and works in Durham producing this coal are employed regularly. The inland demand, owing to the severe winter, has increased much more than for shipment. Some progress towards confidence has been made amongst commercial men in this district. Peace in the East is now considered to be assured, and increased confidence is the result in all transaction with that quarter of the world. Another hopeful feature is the marked increase in the demand for chemicals and other products here for the United States of America. Shipments on a large scale of chemicals are being made to that country. At the collieries in Durham, where the men are on strike against proposed reductions, 10s. per week has so far been paid to the men from the Union funds, but those funds, it is stated, are nearly exhausted, so that those payments wil shortly cease. A considerable number of men, both miners and surface men, are out of employment, and much distress prevails in many localities.

The iron market at Middlesborough on Tuesday was very quiet. The tendency of prices was decidedly downwards, and towards the close of the market greater weakness was noticed, makers being ready in several cases to give way in order to make sales. No. 3 has been sold by makers at 35s. to 35s. 6d., less 1 per cent., and by merchants at 34s. 9d. net. The price for forge pigs No. 4 ranges about 6d. per ton less. The makers do not sell except for short periods, but merchants are willing to do a more extended trade. The shipments of pig metal to Scotland have increased, and for last week considerably above the usual average, and above 1100 tons more than in the corresponding week of the previous year. The continental shipments have not been so good. The Cleveland and Scotch producers are running a close race one with the other. The lower prices of Scotch iron, and the advantages of sea carriage for the short distance to Lancashire are inducing Scotch makers to endeavour to hoist Cleveland brands from that market, and to some extent they have been successful, as the railway dues add a very considerable sum to the cost of Cleveland iron delivered in Lancashire. The Scotch makers are also attempting to create trade in South Wales, but as only about 4000 tons per month is shipped from the Tees, and there is a good sea delivery, it is probable that the attempt of the Glasgow men in that direction will not prove successful. Locally there is less pig-iron used, as the finished iron trade is quiet, and many of the works are going irregularly, owing to lack of specifications for plates, stock taking, and other causes. The plate makers in some instances have still a good deal of work in hand.

Bars and angles are rather quiet, and less is doing at many of the engineering works. The wire works are well employed, and steel is being turned out in enlarged quantities. Plates are 5*l.* 7s. 6d.; bars, 5*l.* 5s.; angles, 5*l.* 5s. to 5*l.* 7s. 6d.

P.S.: The dispute at Hebburn has been settled by the men accepting a reduction of 7½ per cent., and the works will be commenced immediately; and the strike at Radcliffe Colliery, Northumberland, which has continued many weeks, has at length been brought to a close.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Dec. 19.—No more employment is being found for the ironworkers this week than last; in many instances the works are being kept on merely to find food for the men, for orders are scarce and profitless. The news that the execution of public works in India is to be postponed as far as possible is very unwelcome to this district, as it means less iron required by the engineers, by the railway fastening makers, and others. At present there is some good Indian engineering and other work in hand in South Staffordshire, and a large increase had been looked forward to. Boiler-plates of high quality, which a month or two ago were in large demand, are now very little enquired after, and makers are closing their entire works for a week at a time. The description of iron most active is sheets, yet with the exception of the thin guages these are not so much sought as they were. Bars of the quality denominated by the term "marked" are selling at 7*l.* 10s., Earl Dudley's make being 12s. 6d. per ton in advance of this figure. Below 6*l.* will here and there obtain common bars. Good hoops are priced at 6*l.* 10s. upon the open market. The severe competition from the North of England helps to keep the prices of pigs very low; 1*l.* 18s. 6d. is mentioned as a minimum price at which cinder pigs can be bought; 42s. is the more general price. Cold-blast, all mine sorts, are 4*l.* 15s. in actual transactions, and hot-blast sorts 1*l.* lower. Private wages reductions, with the alternative of the works being laid off, are still going on through the district. The old-established firm of Messrs. Parkes, Woodsetton Works, Coseley, have this week given notice to their workpeople that unless a 10 per cent. drop in wages is accepted the works will be closed. The furnacemen at the Coneygre Works of the Earl of Dudley have received 14 days notice to terminate contracts, and at its expiration it is understood that the remaining furnace in blast there will be laid off. The house coal trade continues good, and orders are more equally distributed.

The Colliers upon Cannock Chase have resumed work. The masters met the men by agreeing to re-open the pits if they would consent to a drop of 3d. per day in holers' wages until the close of March, and a further similar drop after that period if there should be no substantial improvement in trade. At a mass meeting the men subsequently accepted the immediate 3d. drop, which leaves their wages at 2s. 6d. per day, or stint, but asked that these wages should be the minimum to be enforced.

The ironworkers are now manifesting a more conciliatory spirit. A mass meeting was held at Bilston on Monday, and a resolution adopted that the question of the wages to be paid per ton of 2240 lbs. comes within the jurisdiction of the Wages Board for settlement; if not by the members themselves then by the President. Until it has been so settled there is to be no cessation of work. At the same meeting a unanimous vote of "perfect confidence" was expressed in Mr. Joseph Chamberlain, M.P., president of the Board.

North Staffordshire collieries where manufacturing fuel is mined are not doing less than they were, nor on the other hand are they more active. The demand for domestic coal is favourably maintained. Pig and finished iron are dull of sale.

At Birmingham this afternoon a meeting of coalmasters was held, Mr. Fisher Smith presiding, at which a deputation was appointed to ask the local canal companies to index all boats to the statute ton in accordance with the Weights and Measures Act, thereby to facilitate arrangements which shall make the Act operative touching water as well as land carriage. The colliers are now paid by the statute ton, but most colliery-owners have to sell 22 cwts. to 1 ton. To-day also the Holloware and General Ironfounders Association determined not to alter discounts in the ensuing quarter.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Dec. 19.—Mining operations in Derbyshire have undergone very little change of late, and work in many instances is slightly better than it has been. In the lead districts the production of ore has been steady, if not so large as it was a few years since, when the price of lead was so much higher. But as things are investors are not likely to venture in a trade which cannot be looked upon as profitable, more especially when the cost of sinking is taken into consideration. In ironstone a comparatively small quantity is raised in the county, as ironmasters are content to take a large proportion of what they require from other districts from which the carriage rate is moderate. In so doing no doubt there is some little advantage; for whilst the stone from Northamptonshire is more silicious than that raised in Derbyshire, the ore from Lincolnshire contains as much lime as is required for fluxing. Of late the collieries have been working very well, for the severe frost has led to an increased demand for house coal, so that prices have slightly improved.

The London trade has been good, and the Midland has taken off late a larger tonnage than usual. To the Eastern Counties and the West of England business has also improved. But in other qualities of coal there is not so much doing, the markets being very flat, whilst the requirements of manufacturers have declined. The production of pig-iron has been up to the average, and transactions somewhat moderate, and prices unremunerative. Manufactured iron, also, does not meet with anything like a good enquiry, so that a good many men are still unemployed. The foundries are working steadily, but with a less number of hands employed than formerly. In the Chesterfield and some other districts a good deal of distress prevails, but is met by the subscriptions of the inhabitants, who have come forward liberally in money, clothes, and coal.

"Bull-Week" in Sheffield is the week previous to Christmas, when the workmen, when there was plenty for them to do, toiled night and day in anticipation of the holidays, and to secure money to enjoy them. This year, however, there will be very little "bulling" indeed, for not only is work scarce, but hundreds have nothing to do, whilst more are not doing more than half-time. Some few houses engaged in the best descriptions of table cutlery have received a few orders of late, and so placed their hands in a better position than they would otherwise have been. Cast-steel is still very quiet, and many of the furnaces out, but Bessemer is still tolerably brisk, seeing that as yet there has been no diminution in the output of rails of that material; but many orders are fast being cleared off, and it is for time to show whether they will be replaced by others.

There is a good deal of competition going on in Bessemer rails; profits made are small, seeing that Sheffield is not so advantageously situated for shipping them as other places where the sea board is nearer, so the cost of railway carriage is a rather important factor in the matter. We are likely to have a busier tone as regards armour-plates, a considerable order being given for them to Cammell and Co., of the Cyclops Works. Ship and boiler plates are in moderate request, but the engine works are still comparatively quiet, whilst the mechanics are far from being fully employed. Orders from America and Australia for cutlery and other goods it may be said have come somewhat more freely to hand of late. There has, however, been no diminution in the number of persons who are receiving the benefit afforded by the mayor's fund, which has relieved a vast amount of distress in a practical and sympathetic manner.

In South Yorkshire the Coal Trade is much better than it was a short time since, the demand for household having improved for the London and other markets. The merchants in the Metropolis have taken advantage of the weather, and advanced their prices 1s. per ton, and this fact has been caught hold of by the leaders of the Miners' Association, most of the members of which have had notice of a 12½ per cent. reduction. But it is only fair to say that the colliery-owners have nothing whatever to do with the fixing of the rates at which coal is to be sold to the metropolitan consumers Steam coal does not go off any better, nor is there much doing in small.

Mr. E. Booth, of the Stretton Colliery, near Chesterfield, and formerly a director of the Industrial Coal and Iron Company, has filed a petition for the liquidation of the affairs in the County Court at Barnsley.

At the Kiveton Park Colliery, near Sheffield, a dispute has taken place as to a reduction of wages, the men offering what would be equal to 5 per cent., being about 1d. per ton on both slack and coal.

Last week a considerable number of men were thrown out of work by the flooding of the Woolley Colliery, midway between Barnsley and Wakefield. The water got into both the thick and thin seams of coal.

It appears that the strike at the Denaby Main Colliery, near Doncaster, has not yet terminated, although it was understood that terms had been come to last week, and that work was to be resumed on Monday.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Dec. 19.—The detailed geological structure of the mining district of Cardiganshire has found a competent exponent in Prof. Walter Keeping, of the University College of Wales. Mr. Keeping contributes a paper on the subject to this month's Geological Magazine. I hope to notice this paper on a future occasion, and in the meantime I express the hope that the author will follow up his enquiries. I have more than once noticed the importance of such a work being done, for we do want to know more than the ever recurring clay-slate and congenial strata of the mining captains and engineers.

The Brick Trade is at last feeling the general depression. At Buckley Mountain three of the brickworks have been closed, and stocks are accumulating at the others. The wages of the brickmakers have been reduced from 10 to 15 per cent., and those of the engine drivers and mechanics to 24s. per week. In the Dolwyddelan slate district the number of men employed at Graigddu Quarry has been reduced from 120 to 25. At Prince Llewelyn Quarry above 100 men have been discharged, The works have been curtailed at Pontbren new quarry, and nearer Ffestiniog reductions have been made in the number of men employed at Rhrwbach and Bwlch slaters. At Diphwys Curson Quarry, one of the most important at Ffestiniog, the men are to work three weeks out of four each month. The promoters of the Bangor and Bethesda Railway have deputed Mr. Richard Parry, contractor, of Menai Bridge, to survey a route for a narrow gauge line *via* Tregarth to the sea shore near Garth.

The St. Martins Colliery, formerly the Ifton Rhyn Colliery, has been working briskly of late, and rumours are afloat that the colliery is about to be purchased by a gentleman, and worked as a private undertaking. This colliery finds local sale for its output, which is not large, and the coal, consequently, fetches a higher price than that from the collieries doing a large wholesale trade. Considerable reductions have been made in the staff and the working expenses of the Cambrian Railway. Many old and tried servants of the company have been discharged, but whether the changes and reductions made will conduce to the greater convenience and efficiency in the working of the railway remains to be seen. The productiveness of the Van lode keeps persistently good in depth, and the monthly sales of 500 tons of lead, besides blende, continue their regular course. Most out-of-door operations at mines and quarries are now suspended, owing to the severity of the weather, which has been unusually severe on this side of Christmas.

Mr. Darby, of the Brymbo Colliery and Ironworks, has been lecturing in Wrexham on the causes of the present depression in trade. Mr Darby passed in review very impartially the various causes of the inflated prices of a few years ago, necessitating excessive capital, and leading to over production. The unbusiness-like advice on which men have acted, their intemperance and improvidence, &c., the whole effect of these causes being aggravated by the unsettled state of the political atmosphere. Mr. Darby spoke hopefully of the future.

There are two questions I should like to put to the over-sanguine promoters of lead mines, which are these—Why should the fact that an immense amount of ore has been taken out of a mine in the distant part be considered as a sure evidence of its renewed success in the future? May not such a mine be simply exhausted? Secondly, why should the fact that a lode has been stoped for some distance by former workers be taken as a sure indication that it contained a rich body of ore? May not the fact that the stoping has ceased indicate that the ground proved too poor to pay for stoping any more? Even if my questions do not receive an answer they may suggest material for reflection.

Some of the men who were out on strike at the Bangor slab yards on the Saturday half-holiday movement have resumed work at the Penlon yard. Mr. Humphrey Williams is the only employer seeking the extension of working hours on Saturdays. An important question is being raised with respect to the damage caused by the pumping of brine in the Cheshire salt districts, and which results in the subsidence of the land. Rain falling over the area finds its way over and through the salt beds, and is pumped as brine out of wells sunk for the purpose, and also from old salt mines. It, therefore, follows that salt proprietors are pumping up the substance of their neighbour's property. A deputation, which has just waited upon the Home Secretary, has proposed a tax of 1s. per ton, which would produce 6000*l.* a year, which sum should be applied for the relief of injured landowners.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Dec. 19.—What excitement there has been with reference to the suspension of the West of England Bank has now calmed down, and business has resumed its normal aspect. A meeting of the shareholders of the Bank has been held at Bristol, when it was resolved to wind-up affairs voluntarily. The continued depression in trade in South Wales was given by the chairman (Mr. Jerome Murch) as one cause of the difficulties of the directors. From a report prepared by the official liquidators, it appeared that the total liabilities amounted to 353,265*l.*, and the assets were set down as fetching 3,048,947*l.*, leaving a supposed deficiency of 304,000*l.* odd. It is expected that the creditors will in the course of a few weeks receive the first instalment.

During the first three days of the week the Abercarne Explosion enquiry has been proceeding before Mr. Brewer, the coroner for the district, who was assisted by Mr. Wheelhouse, Q.C., M.P. Up to the present the evidence has been given principally by men who had worked in the pit. The witnesses spoke to the attention which Mr. Pond, the manager, had given to his duties; and, according to that evidence, the pit was comparatively free from gas, although when occasionally observed the men, in the particular part where it was observed, were ordered out, and every precaution taken. Several of the men who left work on the morning of the explosion state positively that they did so solely on account of a dispute as to paying for filling up with rubbish, and not as to any fear of danger. It was impossible to give any scientific testimony, owing to the inability to make a thorough exploration of the pit, and no time can be indicated when the large number of bodies now entombed can be got at. The enquiry was yesterday adjourned till January 6. Among the gentlemen present were—Mr. Coward, Chairman of the Ebbw Vale Company; Mr. Cadman, Inspector of Mines for Monmouthshire, &c.; Mr. Donald Bain, his assistant; Mr. Thomas Wales, Inspector of Mines for South Wales; Mr. E. Higson, consulting engineer of the Ebbw Company. Mr. J. E. Ward, solicitor, Newport, appeared for the company, and Mr. Walter Morgan, Pontypridd, for the relatives of the deceased and the miners of South Wales. A final meeting of the committee formed at Abercarne to raise funds for the relief of the sufferers by the explosion has been held. The sum of 1582*l.* 1s. 8d. has been collected by ministers and gentlemen in the neighbourhood.

A narrow escape from a serious catastrophe has occurred at the Bryncoch Colliery, Duffryn, Neath, where more than 200 men were employed. As it is, eight men were seriously burnt. The pit is said to be a well-ventilated one. The explosion occurred through the fall of some part of the old workings, where gas had accumulated.

The colliers having declined to agree to the terms offered by the associated masters, the latter have met at Cardiff, and passed the following resolution:—"With the view of enabling the sliding scale committee to proceed with the consideration of a modification of the sliding scale arrangement, it is resolved that the necessary six months' notice be given by the Association on the 31st inst." This evinces a temperate spirit on the part of the employers in looking at the question, and it is to be hoped, after having had time for consideration, the men will come to their senses.

It is satisfactory to announce that the Crumlin Bridge Works have again fallen into the hands of a Kennard. After the works had been carried on by the Kennards for some time they came into the hands of a company, which failed. Now that the family have again the works in their hands it is hoped they will once more resume their wonted activity. There is an old story, which many say is a true one, with regard to these works. Persons spoke of the instability of the Viaduct, and in order to set aside these rumours Mr. Kennard caused the works to be built immediately beneath. Mr. Paton, formerly of Blaenavon, is named as the new manager.

One topic of conversation in connection with the Iron Trade of the district has been the petition presented for the winding-up of the Blaenavon Iron and Steel Company. On the occasion of the appointment of provisional liquidators, it was stated that the petitioners were anxious that the works should not be stopped before the hearing of the petition. The number of persons employed at these works is several thousands, and if they are stopped the greatest distress must prevail. Mr. Martyn, the manager of the works, and Mr. Wallis, the London secretary, have been appointed provisional liquidators. The position of the iron industry has varied but little since last report, and the quantity of iron rails now turned out is hardly worth speaking of. Clearances of iron have been rather larger, and there has been a little more doing in bar iron. There is not, however, the slightest improvement in prices, which seem rather to take a retrograde direction. There is about the average quantity of steel rails turned out; but the orders for these have to be taken at prices which cannot leave any margin for profit. The Tin-plate Trade is materially unaltered, but the slight improvement noted continues.

The Coal Trade is in about the same condition as usual. Proprietors mostly compete keenly for what orders are given out, but prices have not materially changed. The demand on foreign account is fairly good, although shipments have not been quite up to the average. For house coals there is a better demand, owing to the colder weather. Patent fuel is very dull, but there is a slight move in the demand.

THE LEAD MINES OF FLINTSHIRE AND DENBIGHSHIRE.

Attention was called in last week's Journal to this district by a short sketch of its capabilities in the production of lead, the main features of three of the great lodes—Talargoch, Minera, and Gwernymynydd being particularised. It may not, therefore, be uninteresting to add a few of the essential features, geologically speaking, in connection with the most important mineral deposits, and naming the richest mines. Taking a transverse view from west to east of the formation, there is the slate as a base, upon which are the various sections of lime rocks, dipping generally east 1 in 7. Upon these eastward is the grit in various forms, from sand to the stratified chert, and the grit is the base of the coal formation, which is in consequence in close proximity to the metal-producing strata along the entire range from Talargoch to Minera, and beyond. Bearing these circumstances in mind it will be more easy to understand the parallels in which the results of mining enterprise, combined with skill and experience, have hitherto been successful to a degree, warranting the opinion that success in the main lodes is merely a question of money. The first parallel is that skirting the coal field, and is the grit before described, in which are situated the rich chert lodes and flats, varying in width transversely from 400 to 600 yards. The second is the carboniferous lime rocks, in sections (fossiliferous mountain, silicious, and others), interspersed with shale beds. In certain sections of these rocks, and within a mile or thereabout west from the first parallel, are situated all the great courses of ore in that measure. The third is again west, and is the outcrop of the lower stratum of primitive lime rocks, in which the ore deposits are bunchy and uncertain. Mining in this is easy, and consequently selected by the inexperienced, and to which further reference need not be made.

In the first parallel are to be found the celebrated mines of Talargoch (east end), Talacre, Trelogan, Holway, Milwr, Sir George's, Halkyn, Hendre (east end), Rhydymwyn and Penyfron, Fawnog, Gwernymynydd Pwlly Wheel and Jamaica, and Minera (east end). In the second are Talargoch (west end), Holway, Penyrhenblas, Parys Mine, Sir George's (west end), Pant-y-Go, Rhosesmor, Hendre (west). The Mold mines, comprising Penyfron, Llynypanddu, Rhydalun, Pant-y-Mwyn, Pant-y-buarth and Cat Hole (Gwernymynydd), Maes-y-Safn, Pant-y-Du, Westminster, Bodidris, Minera, Park and Pool Park. With few exceptions those above enumerated in the first and second parallels have yielded from 400 to 500 tons monthly for long periods. Very few are exhausted, and several are, as it were, in their infancy. The development of which, and the explorations in the intervening unworked ground, are now attracting that attention which results so magnificent justify. It is confidently estimated that the profits of 12 months' working (and several years might be selected since 1820) would go a great way to overbalance the entire loss by mining since that date, and it is asserted that where main lodes have had capital and skill employed, under experienced eyes, in their proof in the parallels in question, there has been no positive failure. This mining district in the zenith of its glory was very heavily taxed by the high rate of royalty—32s. per ton, 1-6th, 1-8th, and 1-10th being the general charge. The landlords no longer stand in their own light. They have reduced the royalty considerably, and at Gwernymynydd to 1-20th, a very important consideration, which will necessarily encourage a spirit in its development that it otherwise would not have had. All these circumstances encourage the investor, and show that mining in Flintshire and Denbighshire, on a comprehensive scale, guided by judgment, cannot fail, and that dazzling results may fairly be anticipated.

Royal School of Mines.—The sixth annual dinner of the Royal School of Mines was held on Thursday evening at St. James's Restaurant. Mr. F. Drew presided; and there were present, among others, Mr. W. W. Smyth, F.R.S., Sir Julius Vogel, Prof. Ramsay, F.G.S., Mr. T. Reeks, Prof. Abel, F.R.S., Prof. Guthrie, F.R.S., Prof. Judd, F.G.S., and Mr. R. Smith. An apology for absence was received from Prof. Tyndall. The toast of "The Queen" was drunk in solemn silence, on account of the recent loss sustained by the Royal family. The toast of the evening, "The Royal School of Mines," was responded to by Prof. Smyth, who remarked upon the general distress which, he said, had seriously hampered mining and metallurgical enterprize. That distress might make them well nigh hopeless if we did not know something of its origin, and if we were not aware that it was by no means confined to this country, but that it extended over the face of the globe. With patience, they anticipated that they would pull through the crisis, and therefore in the meantime they ought not to relax their efforts to raise and prepare the minerals so necessary to mankind. On the contrary, it was their duty to resolve to exert themselves to produce and to improve these substances at a more economical rate. It was only by acting upon such a resolution that they hoped to weather the storm and to meet the competition with which they were threatened from various countries. Other nations, notably the Prussians, were taking care to maintain their mining schools; and although our Government had not followed the Prussian example, private enterprise had recognised the value of such centres of instruction as this school, and excellent institutions already existed in Cornwall, at Bristol, and in other portions of the country. In this fact he recognised a sign of the times, and an acknowledgment of the good influence of the Royal School of Mines. Thanks to that school, there now existed a body of men from whom might be seleected persons well fitted for the work of exploration. The chairman proposed, and Sir Julius Vogel responded to, the toast of "The Old Students." Prof. Guthrie and Judd responded for "The Professors." Prof. Ramsay answered for the Geological Survey; Mr. Reeks, registrar, for the Museum of Practical Geology; and Prof. Abel, for the Royal College of Chemistry. Other toasts followed.

Miners' Conference.—Mr. Alex. Macdonald, M.P., delivered his opening address, on Tuesday, as President of the National Conference of Miners, held at Manchester. He said the reason why fresh legislation for improving the condition of miners was required so often was the frequency of the changes in mining. Fifty years ago there were no changes; consequently covers overhead were needless. Neither did the present dangers from carburetted hydrogen then exist, because the miners were nearer the surface; and at that time blasting with powder was unknown, therefore legislation against it would have been madness. General rules as to diluting and rendering harmless all noxious gases would, if carried out, be adequate, but a change might be required in the way of extending their application not only to working places, but to all accessible places in the mine. The rule required to be enforced by personal penalties, and not by money penalties, which had proved a mockery. As to blasting, he had no objection to the employer getting his coal cheaply, but he objected to its being got at the cost of human life, whether the risk were run by employers or by working men. The remedy for the evils resulting from blasting was the total prohibition of the use of powder in mines where fire-damp was known to exist. The firemen in mines must be men of intelligence, who understood the nature of the dangerous gases, and who would give due warning when danger threatened. The manager of a mine should be appointed for one mine only, and anything short of making those who were considered responsible really and truly responsible for the state of the mines must reduce the carrying out of the Mines Act to the level of a costly farce. The system of storm signals should be extended from our coasts to the mining centres. The storm-drums might be exhibited at the chief police stations. The question of development of mines was one of great importance, as an improper development of a mine might lead to great loss of life. The promoters of a new mine should be compelled to submit their plans either to the district Inspector or to the Home Office. The principle of a Ministry of Mines had been adopted in Belgium and in France, and he believed if such a man as Mr. Joseph Dickinson were made Minister of Mines in this country it would be a guarantee that British mining was carried on with safety to a much greater extent than was now the case. A vote of thanks to Mr. Macdonald for his address was passed, and the Conference proceeded to deliberate upon some of the points to which he had referred.

The Diamond Fuel Company—A petition was presented in the Chancery Court on Saturday for the winding up of this company by Mr. Sullivan, a shareholder. The company was formed in January, 1873, for working certain patents for making artificial fuel and for granting licences for the use of the patents. The nominal capital was 200,000*l.* divided into 40,000 shares of 5*l.* each. All the shares had been allotted. Calls had been made to the extent of 80,000*l.*, out of which there were arrears to the amount of 2375*l.* The petition stated various circumstances showing misconduct on the part of the promoters and directors, and it alleged that the whole of the plant and machinery had been sold, and that the company was unable to carry on its business, and that in consequence of the circumstances alleged the company was unable to pay its debts, and ought to be wound up. On Nov. 29 a preliminary objection was raised that a petition could not be presented by a shareholder, but that objection having been overruled, the petition now came on for hearing.—Mr. Glasse, Q.C., and Mr. C. H. Turner appeared in support of the petition, and contended that a winding-up order was the only way by which an investigation could be obtained of the transactions of the company; Mr. Higgins, Q.C. and Mr. Whitehorne appeared for persons who supported the petition. Mr. J. Pearson, Q.C. and Mr. Farwell opposed a winding up order, on the ground that there was no evidence of mismanagement on the part of the directors; and if the charges were proved it should be by an action against the directors, and not by a winding up that they should be prosecuted—The vice-Chancellor expressed an opinion that the charges made against the promoters and directors were quite sufficient to support a winding-up order; but he was not satisfied with the proof of those charges, and he could not dispose of the case without having the evidence of Mr. Metcalfe and Mr. Whitehead, who were well acquainted with the principal transactions, and, as he had power given him by the orders of Court to require further evidence, he should direct the petition to stand over till the sittings in January for the attendance of those gentlemen.

Blaenavon Iron and Steel Company.—A petition for the winding-up of this company having been presented to the High Court of Justice, an application was made on Tuesday for the appointment of provisional liquidators. The petitioners were Messrs. Kennard, Waringe, and Laing, who were holders of 4380 shares of 50*l.* each, out of the whole number of 8074 shares. They were also creditors to the amount of about 40,000*l.*, and guarantors for 26,000*l.* The company had been kept going principally by their money, and through their exertions.—Mr. Buckley, in support of the application, stated that the company was one of very long standing, having been formed in the last century for the working of coal, iron, and steel, but owing to the depression of trade it was now about to be wound-up. The weekly wages to the men exceeded 4000*l.*, and it would be ruinous to stop the works. The petitioners had a very large stake in the company, and they were desirous that liquidators should be at once appointed. They now proposed Mr. Martyn, the present manager of the works, and Mr. Wallis, the secretary in London.—Mr. Nalder appeared for the company, and consented to the appointment of these gentlemen. Vice-Chan. Malins made an order appointing Mr. Martyn and Mr. Wallis provisional liquidators, with power to continue the works and to execute all necessary contracts and carry on the business of the company.

Mines Inspection Act.—At the Castle Eden (Durham) Police-court on Saturday, Mr. P. Cooper, agent to the Thornley, Ludworth, and Wheatley hill Collieries, and Mr. William Hall, certificated manager, were charged with having infringed the Mines Inspection Act by allowing a surface engine fly-wheel to be unfenced for a period of eight days in October last. Mr. Bell, Government Inspector of Mines, and his assistant proved the case, and the defence was that the engine had undergone some repairs, which necessitated the pulling down of the fence, and two subordinate servants had neglected to rebuild it. Cooper, who was convicted six years ago for an offence of negligence, was fined 5*l.* and costs, and Hall was fined 10*l.* and costs

Patent Steam Crane.—Amongst the machinery exhibits at the Smithfield Club Cattle Show the working model of the patent steam crane, just returned from the Paris Exhibition, and invented by Messrs. Priestman Brothers, of Hull and Gracechurch-street, London, attracted considerable attention. Among the many purposes to which the crane is applicable may be mentioned the dredging docks, canals, lakes, reservoirs—or, indeed, for dealing expeditiously with dry materials—coal, lime, sand, ballast, or any granular substance, as 3 tons or cubic yards can be excavated and dumped with this machine per minute, and two men can accomplish in one day as much work as twelve men could get through with the ordinary appliances. The machine has been much improved by the addition of a patented brichet and grab, by which large coal Kentish ragstone, bolders, or masses of rock, as well as hard maiden earth, can be raised as well as excavated, the new grab being specially effective in breaking up the earth. It is stated that Messrs. Priestman Brothers have received a request from the authorities at South Kensington Museum to exhibit their model in working there, it having created such marked attention and favourable impression at the Paris Exhibition. It is satisfactory to find that the invention has proved admirably adapted to the special work for which it was designed, and is a great commercial success.

IMPROVED ROCK-DRILLS.

In connection with that class of rock-drilling machinery in which the action consists of a combined percussive and rotating movement some improvements have been invented by Messrs. Forsyth and Barnes, of Ulverston. The apparatus consists of a cylinder fitted with two pistons and rod, by preference all forged in one piece, and provided with covers at each end, through one of which, the front cover, the piston-rod projects, and is there made of square, six-sided, or other form, with suitable gland and box for the packing, so that the cylinder and piston shall rotate together. The end of the piston-rod is bored out for the insertion of the drilling tool, and upon the outside is screwed a collar having two set screws, which, when set up, grasp the tool in place. The back cover has the feeding screw attached to it, and through both screw and cover the steam or compressed air is conveyed to the valve chest and cylinder. The slide valves are made to move over the ports by means of a lever or levers engaging on to the valve or valves, or on to a valve spindle common to both, and is actuated by contact with a cam piece formed or fitted on to one side of the piston-rod between the pistons. The cylinder is formed with longitudinal and circular ribs or fins of such dimensions that the whole body of the cylinder can be turned up in the lathe to a diameter sufficient to clear the valve chests and passages. The cylinder is made to work through a tube or hoop piece formed with a bed-plate, and with lugs for stay bars for connecting with a cross-head fitted with a nut, which fits on the outer end of screw for the feed. The bed-plate is pivotted upon a clip piece, which can be put upon a bar or strong tube of wrought-iron, so that the power of turning to its work is given in any direction, while through the hoop or tube piece the cylinder, piston-rod, and drill tool can be rotated, and at the same time fed forward to its work by the screw.

The bar is provided with a strong screw at one end, and a double-toed swivel claw at the other end, to fix it in position. Or the cylinder may be mounted upon a tripod or wrought-iron framework, consisting of two rings or gimballs centred upon pivots, pins, or bolts, to permit of the cylinder being turned completely round upon its axis or to any angle horizontally, and to a considerable angle to the right or left and upon the vertical axis also, and to be completely held fast in position when set ready to work. The vertical axis or pivots are carried in the centre ring, and pivotted into the outer ring, while the outer ring carries the horizontal axis or pivots centred in the eyes of the tripod legs, which can be spread out to any required distance apart, and secured with the bolts and nuts of the ring, and also the bolts and nuts in the slotted wings forged upon the upper ends of the legs. The legs are made partly of wrought-iron tubes, to admit of stout iron bars being inserted at their lower ends to lengthen them as required, and are held in place by means of collars and set screws, and each leg is provided with a footstep adjustable to any height on the tubes for the attendant to stand on when necessary. The inner ring is bored out to fit the cylinder easily, which it retains in position, yet permits it to be turned round within it, and fed forward to the work by means of the feed screw which works through the nut. This nut is formed with two wings or short arms, and is turned up to fit and work round freely in the bored out eye of the cross head, and is retained in place there by means of two wedge-headed bolts fitting into grooves turned on the outside of the nut.

These wedge heads can be set up so as to retain the nut in place in the eye, and at the same time allow it to be turned freely round, and again, the wedge heads can be further set up into the grooves to completely secure the nut from any movement round the screw or end on with the screw. The screw is formed with a collar tapered end and square neck to fit the centre opening in the back cover of the cylinder, and is secured to it by means of a gland nut screwing on to the neck of the cover, which is chased to receive it. Upon the screw is keyed a hand wheel, by means of which the attendant can turn the screw, and with it the cylinder, piston, and drill tool, giving both the forward feed and the rotating motion by one operation. The outer end of the screw carries a swivel union, through which the motive-power fluid passes, and permitting the rotation of the cylinder when coupled up with the feed pipe. When the piston is produced through the back end of the cylinder it is bored out large enough to receive the feeding screw and sleeve. The sleeve is made either square, or six-sided, or three-sided in section, and is fitted with a nut or collar, which is securely fixed into the end of the piston rod, so that both the rod and sleeve shall turn together. The sleeve is bored out to receive the screw, which works through the nut screwed or otherwise fixed into the end of it. A bevel wheel is fitted upon it, which is geared into another bevel wheel actuated by a small handle by the attendant.

Another portion of these improvements relates to such rock-drills in which the piston rod only rotates. The cylinder is made in two parts or lengths joined by flanges, between which are held the flange of a hollow piston box and the flange of the gland therefor, the same bolt holding all these flanges together. The back continuation of the hollow piston rod is formed by a sleeve or tube, the outer end of which has internal screw thread for the feed screw to work in, and the inner end fits in the hollow piston rod with hexagon or otherwise, so as to slide in it and turn with it. The piston rod is forged or cast in one with the piston, and with a collar for actuating the tappet lever for working the slide valve. This collar fits and works in the back part of the cylinder. The sleeve can be turned (and therewith also the piston rod and piston) by means of worm wheel and worm, or by bevel or other pinions.

Coal Armour.—An experiment of some interest has taken place in Porchester Creek. On one side of an old vessel called the Oberon two compartments were formed. They were about 14 ft. long and 6 ft. high, and extended about 8 ft. inwards into the ship. These compartments were filled with coal, one being loose material and the other patent fuel, and the coal in each compartment was divided by boiler plates. Six shells were then fired at the ship's side from a 4½-ton gun, at a distance of 100 yards. None of the shells, however, succeeded in penetrating the coal armour.

Governor for Motive Power Engines.—A governor, which is considered to be especially suited for controlling the action of marine engines, has been invented by Messrs. Kennedy and Munro, of Glasgow. The governor consists of an arrangement of toothed or friction wheels, similar to the arrangement known as the "sun and planet motion." One of the vertical or "sun" wheels is affixed to a shaft driven from a donkey engine, or some such auxiliary power, which is of unvarying or of but slightly varying action. The transmitting or "planet" wheels are carried by a drum or pulley, which is driven from the engine proper, the action of which is to be controlled. At the back of the second "sun" wheel is formed a circular or quadrantal rack, into the teeth of which is pressed a projection from an arm operating the spindle of the throttle valve. The speed at which the "sun" wheel is driven by the auxiliary power, and the speed at which the drum carrying the "planet" wheels is driven by the engine proper, are both so proportioned that when the engine proper is running at its correct speed the motion given to the said drum carrying the "planet" wheels counteracts the motion given to the one "sun" wheel by the auxiliary power, so that the second "sun" wheel is not operated upon; but when the engine slackens or increases its speed motion is imparted from the one "sun" wheel through the "planet" wheels to the second "sun" wheel, which through the rack at its back moves the arm of the throttle valve spindle in the one or the other direction, increasing or opening, or decreasing or closing, the steam inlet, as the case may be. Rests are arranged on each side close to the circular or quadrantal rack in positions to receive and hold the arm of the throttle valve spindle when the said valve is either fully closed or fully opened, and the teeth of the rack are so formed that they run over the projection on the said arm when it is upon these rests should the second "sun" wheel still continue to receive motion in the same direction after

the valve has been fully opened or closed. Although the drum carrying the "planet" wheels is hereinbefore stated to receive motion from the engine proper, and the "sun" wheel to receive motion from the auxiliary power, it will be evident the "sun" wheel may receive motion from the engine proper, and the drum carrying the "planet" wheels from the auxiliary power, the speed being relatively proportioned to attain the object before set forth.

DRILLING SQUARE HOLES BY CIRCULAR MOTION.

Few engineers' apprentices have passed their first April in the shop without being sent for a drill to bore square holes, although they may have previously bought some experience by endeavouring to obtain pigeon's milk from the poulterer, stirrup oil from the cobbler, and essence of tulips from a pretty girl; but in consequence of the simple and ingenious invention of Mr. JULIUS HALL, of Chancery-lane, the first-named joke has been permanently extinguished, for he has really succeeded in devising a method of boring an absolutely square hole with an ordinary carpenter's brace, and that, too, with a rapidity which is really marvellous—quite as quickly, in fact, as an ordinary round hole can be bored with the same brace in the usual manner. By replacing the common brace by an ordinary hand drill stock, Mr. Hall can with equal facility put a 1 in. to 1½ in. square hole through a thick piece of brass, copper, iron, or steel, and that, too, with such accuracy that the subsequent finishing of the hole is entirely unnecessary. It is not surprising that this square-hole drill formed one of the most attractive novelties at the Paris Exhibition, and secured the recognition of the judges in the award of a silver medal to the ingenious inventor.

The utility of the invention is only surpassed in its simplicity, the whole secret of the invention consisting in so holding the tool that it will "wobble." The tool used is an ordinary triangular drill, and the reason of its action will be readily understood. In drilling with the bit fixed tightly in the usual way the cut is, as is well known, in a circular direction, but with the new drill the "wobble" causes the cut to be in the direction of the hole, or from top to bottom, each of the three flat sides in turn making a downward cut whilst rotating, the end of the drill cutting the bottom of the hole perfectly smooth at the same time. The motion of the cutting faces is regulated by a guide-plate between the drill-stock and the work, so that the hole is made with greater accuracy than is usually done by round drilling and filing out. From the smallness and extreme rapidity of the cut the hole is finished so near to truth that it might almost receive a perfect cube, and the amount of power necessary is very small. The apparatus is one which is likely to be generally adopted in engineering establishments, and will no doubt prove highly remunerative to the inventor.

GAS ENGINES.—Some improvements in gas engines with two pistons have been invented by Messrs. WITTIG and HEES, of Hanover, and relate to that class of gas engine in which the motive-power is produced by causing a mixture of gas and air to explode after the same has been compressed to a certain extent, such compression enhancing the power developed by a given quantity of gas, and consequently increasing the effect of the engine. The arrangement consists in using a cylinder open at both ends, in which two pistons move in contrary directions. From the upper piston of this cylinder, which is by preference placed vertically, motion is transmitted to two parallel cranks of a fly-wheel shaft by means of a piston rod, a cross head, and two connecting rods. The lower piston is directly jointed to a single connecting rod acting on a third crank, which is arranged on the same shaft between the said two cranks, but opposite to them. The pistons, therefore, recede from and approach each other simultaneously, but when they are at the shortest distance from each other they leave a space for the compressed gas and air between them; this space communicates by one channel or port with the slide valve, which admits air and gas, and by another channel with an exhaust valve. The pistons when receding from each other aspire gas and air, the admission valve being in such a position as to open suitable communications for accomplishing this purpose. The aspired gas mixture having thereupon been compressed by the inward stroke is caused to be ignited and to explode immediately after the pistons have recommenced to recede from each other. This ignition is thus effected:—In the said admission slide valve there is a passage or chamber, which by a perforation in the slide and a small channel in the cylinder may communicate with the space containing the compressed gas mixture. This communication is opened a few moments before the explosion is to take place; at the same time the said chamber in the slide valve is open on the outside towards a gas flame continually burning. When the valve is in this position the pressure of the cylinder forces a jet of gas and air through the said perforation into the said chamber. Within the latter a tube is arranged by which this jet is directed in such a manner as to cause a draught through the chamber towards an eduction channel in the slide face of cylinder; the said gas flame being thereby sucked into the chamber of the valve ignites the gas mixture of the same. The valve now rising further transports the burning gas mixture upward until communication is established between the chamber and the inlet port of the cylinder, whereupon explosion takes place, driving the pistons outward, and developing power. At the subsequent in-stroke the combustion gases are driven out through the exhaust valve. The admission valve and the exhaust valve are actuated by a crank or eccentric and a cam disc respectively, which are each keyed on a shaft driven at half the number of rotations of the crank shaft.

SCREENING COALS.—The invention of Mr. J. S. DIXON, of Glasgow has for its object the screening of coals or similar materials in an improved manner, and by apparatus which is more uniform and perfect in its action and more convenient in use than that ordinarily employed. In the improved apparatus the screen, which is slightly inclined or horizontal, is made to travel so as to move the coals or other materials gently and gradually from the end at which they are put upon the screen to the other end, and at the same time a transverse reciprocating motion is imparted to the screen to cause the dross, slack, or smaller particles to pass through. The regular travelling motion admits of the operation of picking out refuse or objectionable materials too large to pass through being performed very conveniently and satisfactorily. For these purposes the screen is, according to one modification, made to consist of endless wire ropes stretched round drums, one or more of which is or are driven so as to impart the travelling motion to the screen, whilst another is mounted in movable bearings, to which weights are connected so as to apply the requisite tension to the wire ropes. The transverse reciprocation is imparted to the screen by giving the necessary movement to the driving drum by means of a small rapidly rotating crank or eccentric worked by the driving gearing, or in any other convenient way. The drums may be grooved so as to keep the wire ropes at suitable spaces apart, and the grooves on the drum at the discharge end of the screen may be formed wider apart, or alternately wider and closer, or otherwise, so as to make the spaces between the wire ropes or some of those spaces gradually wider towards the discharge end of the screen. Beneath the screen shutes or partitions are arranged so as to collect the materials passing through in separate sections of different qualities. The wire ropes may be prevented from separating from each other, or opening too widely, by grooved guide pulleys placed at intervals along the screen, or the series of wire ropes or separate wires may be connected by a wire or wires interlaced with them transversely like a weft, the screen being in that case an endless web of coarse and open wire cloth or netting. The transverse reciprocating motion hereinbefore described may in practice be found unnecessary, at least in some cases.

QUICKLIME A PRESERVATIVE OF TIMBER.—For mines put the wood into pits, and cover it with quicklime, which is to be slowly slaked with water, and allowed to remain about eight or nine days, until deemed completely impregnated. It becomes extremely hard, and is said never to rot. Quicklime slaked in a solution of chloride of calcium is used in many parts of the Continent as a fire and water preservative.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN RE PHŒNIX AND WEST PHŒNIX UNITED MINES.

TO BE SOLD, pursuant to an Order made in a Cause of West and Another v. Pulbrook and Another, dated the 22nd day of November last, BY PUBLIC AUCTION, at the Registrar's Office, in Truro, on Thursday, the 2nd day of January next, at Twelve o'clock at noon, the

1464 (12,000ths) PARTS or SHARES of the Defendant, Anthony Pulbrook, Of and in the said MINES. HODGE, HOCKIN, AND MARRACK, Truro (Plaintiff's Solicitors).

Dated Registrar's Office, Truro, December 18, 1878.

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The mine produces large quantities of rich arsenical mundic and tin, and, being worked exclusively by water-power, offers a splendid opportunity for investment.

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THOMAS HORSWILL, Liquidator, Morning News Chambers, Plymouth.

Dated Russell House, Liskeard, December 9th, 1878.

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REFERENCES:
Wm. Lane Booker, Esq., H. B. Majesty's Consul, S. F.; the Honorable Leland Stanford, Ex-Governor of California and President of the Central Pacific Railroad, S. F.; the Right Rev. Wm. Ingraham Kip, D.D., LL.D., Bishop of California; the Rev. William Vaux, Senior Chaplain U.S.A., Santa Cruz, Cal.; the Anglo-Californian Bank, San Francisco, California; the Anglo-Californian Bank, No. 3, Angel-court, Throgmorton-street, London, E.C.

COAL MINES REGULATION ACT, 1872.
EXAMINATION FOR MANAGERS' CERTIFICATES OF COMPETENCY.
DISTRICT UNDER THE CHARGE OF T. E. WALES, ESQ., H.M. INSPECTOR OF MINES.

NOTICE IS HEREBY GIVEN, that an EXAMINATION for MANAGERS' CERTIFICATES OF COMPETENCY, under the above-named Act, will be HELD on the 28th, 29th, and 30th days of January, 1879, and CANDIDATES INTENDING TO PRESENT THEMSELVES at such Examination must, on or before the 10th day of January, notify such intention to the Secretary of the Board of the above-mentioned District, from whom all information as to particulars can be obtained.
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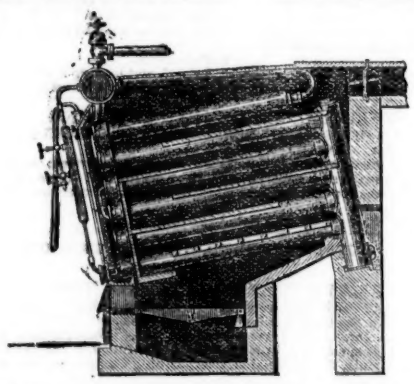
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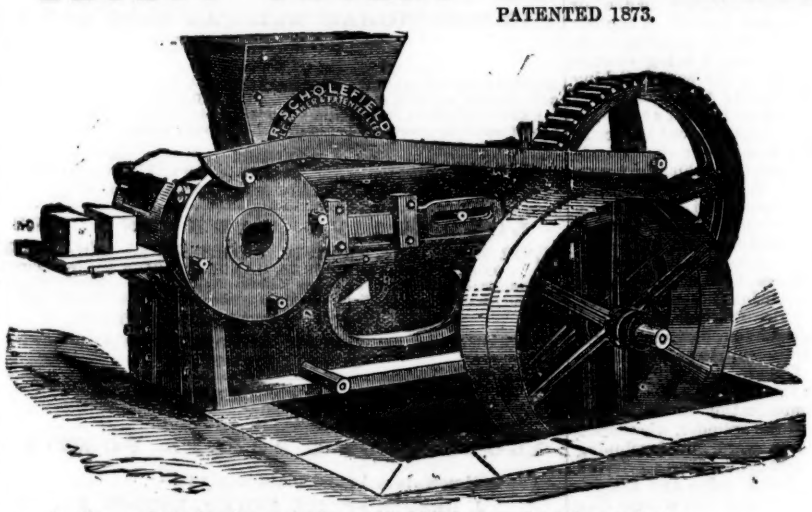
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10000	Caron, l, Cardigan*	2 0 0	2½	2 2¼	0 4 0	0 2 0	Oct. 1878
1000	Carn Brea, c, t, Illogan†§	56 7 6	34	31 33	308 0 0	1 0 0	Feb. 1874
400	Cashwell, l, Cumberland*	2 10 0	—		1 9 6	0 2 0	Aug. 1876
2450	Cook's Kitchen, t, Illogan†§	25 4 9	1⅛	1¼ 1⅛	11 17 0	0 7 6	Jan. 1873
240	Devon Gt. Consols, c, Tavistock†*	1 0 0	1¾	1½ 1¾	116 15 0	0 5 0	July 1877
4296	Dolcoath, c, t, Camborne	10 14 10	30	28 30	113 1 3	0 5 0	Nov. 1878
5000	East Black Craig,* l, Scotland	5 0 0	—		0 10 0	0 10 0	Feb. 1877
300	East Darren, l, Cardiganshire	32 0 0	—		235 10 0	1 0 0	Aug. 1876
6400	East Pool, t, c, Illogan	0 9 9	9½	9 9½	15 13 3	0 1 6	Nov. 1878
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5000	Great Laxey, l, Isle of Man*	4 0 0	19	17½ 18½	24 5 0	0 6 0	Oct. 1878
615	Gt. Retallack, l, bl, Perranzabuloe	5 18 6	—		0 1 6	0 1 6	May 1876
6400	Green Hurth, l, Durham*	0 6 0	⅜	1 1⅛	2 2 0	0 3 0	Mar. 1878
20000	Grogwinion, l, Cardigan*	2 0 0	2⅛	2 2⅛	0 14 10	0 0 10	Aug. 1878
9830	Gunnislake (Clitters'), t, c	5 5 0	1⅜	1¼ 1¾	0 13 9	0 1 0	Oct. 1876
60000	Holmbush, a, c, s-l, Callington*	1 0 0	—		0 4 6	0 0 6	Sept. 1877
3800	Isle of Man, l, Isle of Man*†	25 0 0	—		82 5 0	0 10 0	Feb. 1878
20000	Leadhills,* l, Lanarkshire	6 0 0	2¼	2 2¼	0 15 0	0 3 0	Mar. 1878
400	Lisburne, l, Cardiganshire	18 15 0	37½	35 37½	587 10 0	1 0 0	Aug. 1878
14000	Llanidloes,* l, Montgomery	3 0 0	—		0 9 0	0 4 6	Nov. 1876
9000	Marke Valley, c, Linkinhorne	5 3 6	1	⅝ ⅞	7 15 0	0 2 0	Jan. 1876
10000	Mellanear Copper, Hayle*	2 0 0	4¼	4 4¼	0 5 0	0 3 0	July 1878
9000	Minera Mining Co., l, Wrexham*	5 0 0	12	10 12	67 17 8	0 2 0	Nov. 1878
20000	Mining Co. of Ireland, cl, c, l*	7 0 0	—		23 17 6	0 2 6	Jan. 1878
1024	North Busy, c, Chacewater	1 14 9	—		1 0 0	0 5 0	Oct. 1878
10289	North Hendre, l, Wales	2 1 0	—		2 7 6	0 5 0	June 1878
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5000	Penhalls, t, St. Agnes	3 5 6	1½	1¼ 1½	3 18 6	0 2 0	July 1875
6000	Pennant, l, bar, North Wales*	5 0 0	4½	4 4½	0 10 0	0 5 0	Mar. 1878
45793	Penstruthal,* t, c, Gwennap	2 0 0	⅛	⅛ ¼	0 2 8	0 0 8	Nov. 1875
18000	Prince Patrick,* s-l, Holywell	1 0 0	1¼	1 1⅛	0 14 0	0 1 3	Jan. 1878
10000	Red Rock,* l, Cardigan	2 0 0	2¼	1¾ 2¼	0 4 0	0 2 0	Jan. 1878
12000	Roman Gravels, l, Salop*	7 10 0	6¾	6½ 6¾	7 15 9	0 5 0	Mar. 187-
512	South Caradon, c, St. Cleer	1 5 0	60	50 60	744 10 0	1 0 0	Nov. 1878
6123	South Condurrow, t, c, Camborne‡	6 5 6	10¾	10 10½	4 1 0	0 8 0	Aug. 1878
12000	St. Harmon,* l, Montgom.	3 0 0	3	2 3	0 12 0	0 3 0	July 1878
10000	So. Pr. Patrick,* s-l. (8000 sh. issued)	1 0 0	—		0 7 0	0 1 0	Oct. 1875
4500	South Wh. Frances, c, Illogan†	7 12 4	7	6⅝ 6⅞	37 5 0	0 5 0	Sept. 1878
12000	Tankerville, l, Salop*	6 0 0	3	2⅛ 3	4 17 0	0 5 0	Dec. 1876
6000	Tincroft, c, t, Pool, Illogan†§	11 10 0	8	8 9	50 8 6	0 5 0	May 1877
15000	Van, l, Llanidloes*	4 5 0	19	17 18	23 5 6	0 5 0	Oct. 1878
3000	W. Chiverton, l, Perranzabuloe†	12 10 0	2	1½ 2	55 10 0	0 10 0	Feb. 1878
1783	West Poldice, St. Day§	11 0 0	—		1 19 0	0 4 0	July 1876
512	West Tolgus, c, Redruth	95 10 0	40	38 40	32 0 0	1 0 0	Nov. 1873
2048	West Wheal Frances, t, Illogan§	28 16 3	3½	3 3½	3 12 6	0 5 0	Oct. 1872
600	West Wh. Seton, c, Camborne†§	49 0 0	7	8 10	446 0 0	0 15 0	Apr. 1878
12000	West WyeValley,* l, Montgom.	3 0 0	2	1¼ 2¼	0 12 0	0 3 0	Nov. 1877
1024	Wh. Eliza Consols t, St. Austell	18 0 0	—		19 10 0	1 10 0	Aug. 1878
2048	Wheal Jane, t, Kea	5 13 10	⅝	⅜ ⅝	8 5 0	0 5 0	July 1875
4295	Wheal Kitty, t, St. Agnes	5 4 6	1½	1 1½	11 19 6	0 2 6	Dec. 1874
25000	Wh. Newton, a, c, s, t, Calstock*	1 0 0	—		0 8 6	0 4 0	Sept. 1877
80	Wheal Owles, t, St. Just§	173 15 0	20	15 20	522 10 0	4 0 0	Aug. 1872
3000	Wheal Peevor, t, Redruth	7 11 0	6½	6 6½	0 15 0	0 5 0	Nov. 1878
6000	Wheal Prussia, t, Redruth	0 5 0	5½	5¼ 5½	0 4 0	0 1 0	July 1877
10000	Wye Valley, l, Montgomery*	3 0 0	2¼	1¼ 2¼	0 10 6	0 4 6	Oct. 1876

FOREIGN DIVIDEND MINES.

Shares	Mines	Paid	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
35500	Alamillos, l, Spain*†	2 0 0	1¼	¾ 1¼	1 19 9	0 0 6	Oct. 1878
30000	Almada and Tirito Consol., s*†	1 0 0	¼	⅛ ¼	0 6 3	0 1 0	May 1876
20000	Australian, c, South Australia†	7 7 6	1½	1¼ 1¾	1 1 6	0 2 0	July 1878
10000	Battle Mountain,* c, (6240 part pd.)	5 0 0	—		0 10 0	0 10 0	Nov. 1872
15000	Birdseye Creek, g, California*	4 0 0	¾	½ ¾	0 14 0	0 2 6	June 1874
20000	Caps Copper Mining,*† So. Africa	7 0 0	30½	29 30	33 2 6	0 17 6	Dec. 1878
34433	Cedar Creek, g, California*	5 0 0	⅜	⅛ ⅜	0 5 0	0 2 6	June 1873
35000	Cesena Sul. Co., Romanga, Italy*	10 0 0	—		0 18 0	0 2 0	Aug. 1878
15000	Chicago, s, Utah*	10 0 0	1¼	¾ 1¼	2 8 0	0 4 0	Nov. 1876
65000	Colorado United, s-l, Colorado*†	5 0 0	2⅛	1¾ 2¼	0 13 6	0 4 0	Jan. 1875
10000	Copiapo, c, Chili* (£20 shares)	16 15 0	—		7 11 5	0 3 0	May 1877
100000	Don Pedro North del Rey*†	0 18 0	½	⅜ ½	2 5 9	0 2 0	Mar. 1872
23500	Eberhardt & Aurora, s, Nevada*†	10 0 0	3¼	3 3½	1 8 0	0 3 0	Dec. 1877
70000	English & Australian, c† S. Aust.	2 10 0	1¼	1 1¼	2 15 9	0 1 0	Mar. 1877
80000	Flagstaff, s, Utah*	10 0 0	⅛	⅛ ⅜	4 2 0	0 5 0	July 1873
25000	Fortuna, l, Spain*†	2 0 0	4	3½ 4	7 3 2	0 3 4	Oct. 1878
55000	Frontino & Bolivia, g, New Gran.*†	2 0 0	2¼	1½ 2	0 2 6	0 1 6	Sept. 1878
30000	Gold Run, hyd.	1 0 0	—		0 2 4	0 0 4	Oct. 1872
68000	Kapunda Mining Co. Australia†	1 3 0	—		0 2 4	0 0 6	June 1875
20000	Last Chance, s,* Utah	5 0 0	¾	½ ¾	0 14 0	0 2 0	July 1873
15000	Linares, l, Spain*†	3 0 0	4¼	3¾ 4¼	17 10 4	0 2 6	Oct. 1878
65000	London and California, g*†	2 0 0	½	⅜ ⅝	0 1 0	0 1 0	July 1875
7837	Lusitanian, Portugal*† (£5 sh.)	3 10 0	—		1 11 6	0 1 6	Mar. 1873
5000	Mamm. Copperopolis of Utah, c, s	10 0 0	—		0 5 0	0 5 0	Dec. 1872
5000	Mountain Chief, s, Utah*	10 0 0	—		0 4 0	0 4 0	Jan. 1873
10000	Pontgibaud, s-l, France†	20 0 0	26	24 26 xd	36 19 8	0 19 9	Dec. 1878
100000	Port Phillip, g, Clunes*†	1 0 0	⅝	½ ⅝	1 11 0	0 1 0	Sept. 1878
54000	Richmond Consols, s, Nevada*†	5 0 0	11	10¾ 11¼	6 11 6	0 10 0	Nov. 1878
40000	Santa Barbara,* g, Brazil	0 10 0	2⅛	1¾ 2	0 5 9	0 1 0	Nov. 1878
120000	Scottish Australian Mining Co.*†	1 0 0	1⅞	1⅝ 1⅞	15 per cent.		Nov. 1878
80000	Scottish Austral. Mining Co., New	0 10 0	⅞	¾ ⅞	15 per cent.		Nov. 1878
122500	Sierra Buttes, g, California*†	2 0 0	1¾	1⅝ 1⅞	1 19 0	0 1 0	Oct. 1878
140625	S. B. Plumas Eureka	2 0 0	2⅞	2⅞ 2⅞	2 1 0	0 3 0	Oct. 1878
60000	South Aurora, s, Nevada*	5 0 0	⅜	⅛ ¼	0 14 2	0 2 0	Nov. 1873
£253000	St. John del Rey*† (£5 stock & multiples dealt in)			275 285	½ year. 15 p. ct. for Dec. 1878		
20000	Tolima, g, s* So. America	5 0 0	—		0 11 6	0 6 6	May 1874
25000	Victoria (London)*, g, Australia	1 0 0	¾	¼ ⅜	0 12 6	0 0 7½	Jan. 1878
15000	Western Andes, s,* New Granada	5 0 0	—		0 12 0	0 12 0	July 1876
21000	W. Prussian (5500 pref. sh. 10l. pd)	10 0 0	10½	10 10½	1 6 0	0 4 0	Oct. 1878

NON-DIVIDEND FOREIGN MINES.

Shares	Mines	Paid	Last Pr.	Clos. Pr.	Last Call
12000	Argentine, g, Argentine Republic	5 0 0	—	¼ ½	Fully pd
8000	Bellavista, s, Peru* (£10 shares)	10 0 0	—		Fully pd.
30000	Blue Tent, hyd., California	5 0 0	3	2¾ 3	Fully pd.
10000	Buena Ventura,* l, Llano de las Infantas, Spain (£2 sh.)	0 5 0	—		Oct. 1878
49935	Chontales, g, s, Nicaragua*†	2 0 0	⅝	½ ⅝	Fully pd.
16000	Condes of Chili, s-l	5 0 0	—		Fully pd.
20000	English Australian, g, Victoria*	1 0 0	⅞	⅝ ⅞	Fully pd.
35000	Excelsior Hydraulic Gold Washing Co., California*	6 0 0	—		Dec. 1871
100000	Exchequer, g, s, California*†	1 0 0	⅜	¼ ⅜	Fully pd.
40000	Holcombe Valley, g,* California	1 0 0	—		Fully pd
8000	Hornachos,* s-l, Spain	10 0 0	12	10 11	Fully pd.
12000	Hultafall,* l, bl, Orebro, Sweden	5 0 0	3½	3 3½	Fully pd
12000	Hunter Consolidated, s-l, Utah	10 0 0	—		Fully pd.
20000	Imperial Brazilian Collieries, Brazil*	5 0 0	—		Fully pd.
7500	Isabelle, g, s*, California (£20 shares)	5 0 0	—		Oct. 1878
100000	I. X. L., g, s, California*	1 0 0	¼	⅛ ¼	Fully pd
50000	Javali, g, Nicaragua*	2 0 0	8s.	6s. 8s.	Fully pd
3500	La Manche, l, Newfoundland	10 0 0	—		Fully pd.
12000	Lanestosa,* l, z, Viscaya, Spain (£2 shares)	1 15 0	—		Mar. 1876
75000	Malabar, g, Colombia* (67165 issued)	1 0 0	—		Fully pd.
40000	Malpaso, g, Colombia* (7400 pref. shares, fully paid)	1 0 0	—		Fully pd
12000	Menzenberg, c, Honnef, Germany*	5 5 0	—		Fully pd
4588	New Bensberg, i, l, Germany	5 0 0	—		Nov. 1876
66000	New Quebrada, c, Venezuela*	5 0 0	1⅝	1¾ 1⅝	Fully pd.
20000	New Zealand Kapanga, g, Coromandel*	5 0 0	⅞	⅝ ⅞	Fully pd.
3000	Oregon,* g, Oregon, U.S. (preference shares)	4 0 0	—		Fully pd
50000	Panulcillo, c, Chili*† (£80000 debentures)	4 0 0	1¼	¾ 1¼	Fully pd.
90000	Pestarena United, g, Italy*†	3 0 0	¼	⅛ ¼	Fully pd.
25000	Pitanqui,* g, Brazil (incl. 6000 sh. £1 fully paid)	0 5 0	⅜	¼ ⅜	Aug. 1878
25000	Placerville,* g q, California	2 0 0	2⅜	2⅛ 2¼	Fully pd.
50000	Providencia and New Rosario, s, Mexico*	1 0 0	—		Fully pd.
40000	Ravenscliff, g, New Zealand; c. South Australia	0 5 0	¼	¼	July 1878
50000	Rica, g, Colombia* (40000 issued)	1 0 0	—		Fully pd
£2,181,000	Rio Tinto,* c, Huelva, Spain	Stock	60	57 59	Fully pd
00000	Rossa Grande, g, Brazil*† (£1 shares)	1 0 0	⅛	⅛	Fully pd
30040	Russia Copper, Orenburg and Ufa*†	10 0 0	—		Fully pd
10000	Silver Plume, s, Colorado*	1 0 0	—		Fully pd
30000	Tecoma, s, Utah*	10 0 0	⅝	⅜ ⅝	Fully pd
43174	United Mexican, s, Mexico*†‡	29 0 3	3¼	2¾ 3¼	May 1878
14000	Utah, g, s-l, Utah*	5 0 0	—		Fully pd.
50000	Virneberg, c Rheinbreitbach, Germany*	2 0 0	—		Fully pd.
15000	Yorke Peninsula, c, South Australia	1 0 0	¼	⅛ ¼	Fully pd.
54800	Yorke Peninsula, c, South Australia Preference	1 0 0	⅞	⅜ ⅝	Fully pd.

§ Have made calls since last dividend was paid.

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.

	Closing Prices	
Argentine, 1868 6 per cent.	72	73
Bolivia, 6 per cent.	25	26
Brazilian, 1865, 5 per cent.	92	94
Chilian, 1866, 7 per cent.	90	93
City of Providence, 5 p.c. coupon bnds	101	103
Egyptian, Gov. preference	68	68½
Do., unified debt, scrip	48	48⅛
Do., 7 per cent., V.M.L.	81	83
Do., per cent. guar.	83	86
Do., K. Daira Sanieh	57½	58⅛

	Closing Prices	
Foreign and Col. Gov. Trust, 6 p. ct.	66	71
Do., 5 per cent., 2d issue	56	61
Do., 6 per cent., 3d issue	53	58
Do., 1872, 4th issue	55	60
Do., 1873, 5th issue	52	57
Peruvian, 1870, 6 per cent.	12¾	13¼
Do., 1872, 5 per cent.	10⅛	11
Russian, 5½ per cent. L. Mort.	—	
Spanish, Quicksilver Mort., 5 p. ct.	97	99
United States Mort. 6 per cent.	98	100

NON-DIVIDEND MINES.

Shares	Mines	Paid	Last wk.	Clos. pr.
40000	Aberdaunant, l, Llanidloes*	1 0 0	⅜	½ ¾
2560	Aberllyn,* l, bl, Carnarvon	10 0 0	12	10 12
10000	Aberystwith,* s-l, Cardigan	5 0 0	—	
80	Albion, l, Cornwall	100 0 0	—	
12000	Assheton, l, Carnarvonshire*	5 0 0		
50000	Ballycummisk,* c, Schull	2 0 0	⅜	⅜ ¾
12000	Bedford United,* c, Tavist. (1l. liab.)	0 1 0	—	
30000	Bettws-y-Coed,* l (20,000 issued)	1 0 0	⅜	⅛ ¼
8000	Blaen Caelan,* l, Cardigan	3 0 0	—	
3937	Blue Hills, t, c, St. Agnes	3 16 6	3	3 3¼
30000	Bodidris,* l, bl, Denbighshire	1 0 0	¾	½ ¾
1000	Bollihope Vale,* s-l, Durham	5 0 0	1⅜	1¼ 1½
200	Botallack, t, c, St. Just‡	123 15 0	—	
2000	Bowden Hill,* mn	1 0 0	—	
6000	Bradwell Moss Rake	1 0 0	—	
10000	British,* s-l, Wrexham	0 0	1	¾ 1
256	Browngelly, c, St. Neot	0 10 0	3	2 3
50000	Cambrian,* s-l, c, Cardiganshire	2 0 0	2	1½ 2
20000	Central Foxdale, l, I. of Man* (2l. sh.)	1 5 0	2½	2 2¼
10000	Central Van,* l, bl, Llanidloes	5 0 0	—	
5120	Clementina, l, Llanrwst*	1 0 0	—	
7500	Combellack,* t, Wendron	2 0 0	1¼	1 1¼
6000	Combmartin, s-l, North Devon	0 7 0	—	
24000	Court Grange, s-l, Cardiganshire	1 0 0	⅛	⅛
15000	Cwm Brwyno,* l, Cardigan	2 0 0	1	¾ 1
15000	Cwm Dwyfor,* c, s-l, Wales	1 0 0	—	
5000	Ditto, 12½ per cent. pref.	1 0 0	—	
3000	Cwmystwith (New), Cardiganshire	5 0 0	—	
1080	D'Eresby Cons., l, bl, Carnarvon	10 0 0	10	8 10
1024	D'Eresby Mountain, l, bl, Llanrwst	20 0 0	40	30 40
2000	Denbighshire Consolidated, l*	3 0 0	2	1 1½
12000	Derwent,* l, Durham	4 0 0	1⅜	1¼ 1½
10000	Dubby Syke, l, Durham*	0 15 0	—	1s.
6144	East Caradon, c, St. Cleer‡	2 19 0	⅜	⅜ ½
4000	East Chiverton, l, Perranzabuloe	7 7 6	1¼	1 1¼
3000	East Craven Moor*, l, Pateley Bdge	10 0 0	10	8 8½
6000	East Goginan, l, Cardigan	2 0 0	—	
30000	East Roman Gravels,* l, Salop	1 0 0	¼	⅛ ¼
18000	East Van, l, Llanidloes*	5 0 0	2¼	1½ 2¼
1722	East Wh. Lovell, t, Helston	9 16 0	⅜	¼ ½
20000	Elgar,* s-l, Cardiganshire	1 0 0	—	
12500	Frongoch, l, Cardigan (11000 issued)	2 0 0	2⅝	2½ 2¾
10000	Frosterley,* l, Durham	1 0 0	—	1¼ 1½
3950	Gawton, c, Tavistock	4 5 6	⅜	⅛ ⅜
12000	Glan Clwyd,* l, Gwyddelwern	1 0 0	—	
14000	Glenroy,* s-l, Isle of Man	4 5 0	¾	½ ⅝
10000	Glyn,* l, Llanidloes	2 0 0	⅜	⅜ ⅝
12000	Goginan, & Level Newydd, Card., l	2 10 0	—	
20000	Goren,* s-l, Carmarthen	1 0 0	1	¾ 1
20000	Gt. E. Foxdale, l, I. of Man (1l. sh)	0 18 0	—	
12000	Great Holway,* l, Flintshire	5 0 0	5	4½ 5
9500	Great Pant-y-Pydew, l, Holywell	2 0 0	—	
6000	Gt. Wheal Eleanor, t, North Bovey	1 17 6	2	1¾ 2
6000	Great Wheal Rodd,* s-l, Cornwall	0 10 0	1	¾ 1
10000	Harehope Gill,* l, Durham (£1 sh.)	0 5 0	—	
600	Hartington Moor,* carb. l, Derby	1 0 0	2	1½ 2
6400	Harwood,* l, Durham	0 15 0	—	⅛ ¼
1024	Herodsfoot, l, near Liskeard†	8 10 0	3	2 3
18000	Hingston Down, c, Calstock*†	0 6 0	¼	⅛ ¼
5000	Hush Eisteddfod Minera,* l	2 0 0	—	
2500	Killaloe, sl, Tipperary‡	1 0 0	—	
8000	Killifreth, t, Chacewater	2 7 6	1¼	1⅛ 1¼
25000	Kingston Con., s-l, Stoke Climsland	1 0 0	—	
	Ditto, preference	1 0 0	1⅛	1 1⅛
12000	Ladywell,* l, Salop	2 10 0	1	¾ 1
12000	Ditto, 10 per cent. pref., 1l. each	0 10 0	¾	¼ ¾
5000	Lead Era,* l, Mold	2 10 0	3⅜	2¾ 3¾
2500	Levant, c, t, St. Just	10 14 6	—	
1400	Lisburne Syndic.,* l, Cardigan	5 0 0	8	6 8
6000	Livingstone Consols, t, St. Agnes	0 10 0	1	¾ 1
10000	Lomax, s-l, Perranzabuloe	1 0 0	1¼	1 1¼
5120	Lovell, t, Wendron	0 16 0	2	1½ 2
25000	Llanrhaiadr, l, Montgomery*	2 0 0	—	
30000	Llanrwst,* l, Carnarvon	2 0 0	2¾	2 3
24	Mawston,* l, South Wales	50 0 0	60	55 60
6000	Medlyn Moor, t, Wendron	2 9 10	—	
11000	Melyndwr, l, Cardigan*	3 0 0	1¼	¾ 1¼
7000	Mid Devon Copper*	0 6 8	1¼	1 1¼
21000	Ditto	0 2 6	1	¾ 1
8000	Mineral Corp. of Great Britain*	10 0 0	11	10 11
11000	Monydd Gorddu, l, Cardigan* (Red.)	5 0 0	3	2½ 3
12000	Morfa Du, z, g, s, Anglesea	0 15 0	1	⅞ 1
25000	Nant-y-Ronen, s-l, Cardigan*	1 0 0	—	
15000	Nascent Copper*	1 0 0	—	
4768	New Bronfloyd,* l, Cardigan (5l. sh.)	3 16 0	4⅛	4⅜ 4⅝
8000	New Dolcoath, t, c, Camborne*	3 0 0	1⅛	1⅛ 1⅛
20000	New East Foxdale, s-l, Isle of Man	0 15 0	—	
1492	New Hendra, t, Breage	3 9 0	—	
3200	New South Merllyn, l, Flint*	2 10 0	⅜	¼ ⅜
3500	New Tincroft,* t, Lelant	0 0	3	2⅛ 3
4000	North Cornwall,* l, Cornwall	5 0 0	5⅜	5⅛ 5⅜
30000	North Laxey,* Isle of Man	1 0 0	4s.	2s. 4s.
2000	North Levant, t, c, St. Just‡	12 16 0	1	¾ 1
50000	North Molton, c, mn, i, Devon	1 0 0	1	1
20000	North Prince Patrick,* l, Holywell	1 0 0	—	
5936	North Treskerby, c, St. Agnes	8 17 10	—	
6400	Oola Hills,* s-l, Limerick	5 0 0	—	
12000	Pandora,* l, Carnarvon	2 0 0	—	
6000	Park Valley,* s-l, North Devon	0 4 0	1	1 1⅛
6000	Parracombe, s l, Devon	0 5 0	1	⅛ ¼
16923	Parys Mountain,* c, Anglesea	3 0 0	6s.	⅛
12000	Phœnix, & W. Phœnix, t, c, Link.§	5 10 3	½	⅜ ½
4000	Pateley Bridge, l, Yorkshire	5 0 0	2	
7000	Picton,* s-l, Holywell, fully paid	1 0 0	3	1 1½
12000	Plynlimmon, l, Llanidloes*	2 0 0	5	
10000	Port Nigel,* s-l, Carnarvonshire	2 0 0	6s.	4s. 6s.
2000	Prideaux Wood, t, Llanivery	5 0 0	⅛	¾ ½
5182	Prince of Wales, c, Calstock‡	2 8 0	1s.	6d.
6000	Relistian Consols, c, Gwinear	0 10 0	⅝	⅛ ¼
15000	Rookhope, l, Durham*	1 10 0	½	¼ ½
4200	Snowbrook, s-l, Montgomery	5 0 0	—	
6000	So. Cwmystwith, l, Cardiganshire	2 0 0	3	2 3
4000	South Darren, l, Cardigan*	1 10 0	2	1½ 2
30000	South de Eresby Mountain	1 0 0	1½	¾ 1
6000	So. Devon United Copper*	1 0 0	1	¾ 1
512	South Dolcoath, c, t, Redruth	12 5 0	—	
5000	So. Molton Cons., s-l, No. Devon	0 3 6	—	
18000	South Roman Gravels, l*	1 10 0	¼	⅛ ¼
6000	South Roskear, t, c, Camborne	8 5 0	—	
6000	South Tolcarne, t, c, Camborne	2 5 6	¾	¼ ¾
937	South Wheal Crofty, c, Illogan	41 0 10	5	3 4
12000	Steddfa,* l, Cardigan	1 0 0	1¼	1 1¼
6000	St. Lawrence, Amal., l, Flintshire*	2 0 0	—	
10000	St. Patrick, l, Halkin, Holywell*	1 0 0	1¼	1 1¼
6000	Success, &c., l, Derb. (12,000l. called)	1 0 0	—	
16000	Sunnyside,* l, Durham	2 0 0	—	
30000	Talybont,* s-l, Cardiganshire	1 0 0	—	
4000	Tamar, s-l, Bearalston*	1 0 0	—	
6400	Teesdale,* l, Durham	1 0 0	1⅛	1 1⅛
14000	Teign Valley, i, bar., Bridford	1 0 0	½	6s.
10000	Temple, l, Cardigan*	1 0 0	—	
10000	Tolgus Consols,* c, Redruth	1 0 0	—	
5000	Treleigh Wood, t, Redruth	5 0 0	3⅛	3 3⅛
12000	Trethellan, s-l, Crantock*	6 1 0	—	
640	Truro*, l, Nerquis, Flintshire	2 0 0	—	
5000	Tyn-y-Fron,* l, Cardigan	10 0 0	—	
5000	Ditto	1 0 0	1⅛	1 1⅛
		0 5 0	⅛	⅜ ½
1000	Vaughan*, l., Cardiganshire	10 0 0	—	
18000	Victor,* l, Flintshire (£1 share)	0 5 0	—	
12000	West Assheton, l, Carnarvon	1 0 0	⅞	⅝ ⅞
6000	West Basset, c, Illogan†‡	6 13 4	3	2½ 3
5500	West Combmartin, s-l, North Devon	1 0 0	—	
7000	Ditto	0 2 6	—	
3000	W. Craven Moor, l, Pateley Bridge*	10 0 0	10	8 8¼
5000	West Godolphin, t, c, Breage	2 18 0	1¼	¾ 1
12000	West Goginan,* Cardiganshire	2 0 0	⅜	⅛ ⅜
10000	West Llangynog, s-l, Montgomery	2 0 0	—	
3000	West Mary Ann, l, Menheniot	0 12 6	¾	½ ¾
5000	West Milwr, s-l, Flint	1 0 0	—	
5000	West of England Granite Company	2 0 0	—	
20000	West Pateley Bridge,* l, Yorkshire	1 0 0	2¾	1¾ 2¾
1000	West Roskear, t, s-l, bl, c, Camborne	5 10 0	—	
10000	West Vor,* t, c, ars, Breage	1 0 0	—	
3000	West Wheal Peevor, t, Redruth	0 10 0	¾	½ ¾
6000	Wheal Agar, c, Illogan	12 10 0	4½	3¾ 4½
512	Wheal Basset, c, Illogan‡	23 2 6	5½	10 12½
6000	Wheal Coates, t, St. Agnes	2 0 0	—	
2535	Wheal Comfort, c, Gwennap	1 7 0	—	
6000	Wheal Crebor, c, Tavistock	4 4 6	¼	⅛ ¼
5179	Wheal Grenville, c, Camborne	4 4 0	2⅛	2 2⅛
12000	Wh. Mary Hutchings,* t, Plympton‡	1 18 6	2⅛	2 2⅛
12000	Wheal Russell, c, Tavistock	2 1 6	—	
4096	Wheal Uny, t, c, Redruth	14 8 6	½	⅜ ½
2324	White Cliff,* l, Llanrwst	5 0 0	—	
5000	Wicklow, c, sul, i, Wicklow	2 10 0	—	

b, blende; cl, coal; c, copper; g, gold; l, lead; s, silver; sl, slate; s-l, silver-lead; t, tin; z, zinc.

* Limited Liability Companies; † quoted on the Stock Exchange; ‡ have paid dividends.

IRON AND COAL COMPANIES.

Shares	Company	Paid	Price	
£100	Abbot, John, and Co. [L.]	£75 0 0	27	28
15	Albion Steel and Wire Co. [L.]	14 0 0		—
5	Alltami Colliery Co. [L.]	5 0 0	3	3¼
100	Ashbury Co. [L.]	90 0 0	55	60
8	Bagnall, John, and Sons [L.]	3 0 0	⅜	⅜
10	Benhar Coal Co. [L.]	10 0 0	5¼	5¾
50	Bilbao Iron Ore Co. [L.]	50 0 0	18	20
10	Bilson & Crump Meadow Coll. Co. [L.]	10 0 0	2	2⅛
4	Blaen Cwmbach Coal Co. [L.]	4 0 0		
50	Blaenavon Iron and Steel Co. [L.]	50 0 0		—
100	Bolckow, Vaughan, and Co. [L.] A	50 0 0	2	—
50	Bowling Iron Co. [L.]	50 0 0		4
50	Britannia Ironworks [L.]	25 0 0		—
50	Brown, Bailey, and Dixon [L.]	40 0 0	7	6¼
100	Brown, John, and Co. [L.]	70 0 0	15	14
3	Cakemore, Causeway Green, L. Holt	3 0 0	3¼	3¾
100	Cammell and Co. [L.]	80 0 0	13	12
20	Cannock and Huntington Coal [L.]	10 0 0	9	8¾
10	Cardiff & Swansea St. Coal Co. [L.]	9 0 0	¾	1
10	Cardigan Steel and Wire Co. [L.]	8 10 0		—
10	Central Swedish Iron and Steel [L.]	10 0 0	1	2
5	Chapel House Colliery	5 0 0	2¼	2⅛
50	Chariton Iron Co. [L.]	50 0 0	8	10
50	Chatterley Iron Co. [L.]	45 0 0	40	38
10	Chillington Iron Co. [L.]	10 0 0	2⅛	3
10	Consett Iron Co. [L.]	7 10 0	8	9
1	Consett Spanish Ore [L.]	1 0 0	¼	⅛
50	Cooke, William, and Co. [L.]	40 0 0	42	40
20	Darlington Iron Co. [L.]	12 10 0	⅛	¼
60	Davy Brothers [L.]	22 10 0	1	2
5	Diamond Fuel Co. [L.]	5 0 0		—
23	Ebbw Vale Co. [L.]	20 0 0	16	14
100	Fox, Samuel, and Co. [L.]	80 0 0	25	30
10	General Mining Ass. [L.] (£1 returned)	9 0 0	2⅛	3⅛
20	Great Western Coal Co. [L.]	17 0 0		—
2	Gwyngwillim Colliery Co. [L.]	2 0 0		—
15	Hopkins, Gilkes, and Co. [L.]	11 0 0	11	10
50	Knowles, Andrew, and Sons [L.]	17 0 0	6	5
10	Llay Hall Coal, Iron, & Firebrick [L.]	10 0 0	3	1
5	Littledean Woodside Coll. Co. [L.]	5 0 0		—
50	Llynvi, Ogmore, & Tondu Co. [L.]	50 0 0	5	5¾
10	Lydney and Wigpool Iron Ore [L.]	8 5 0	11	10
10	Marbella Iron Ore Co. [L.]	10 0 0	7⅛	7
6	Mersey Steel and Iron Co. [L.]	5 0 0		—
10	Midland Iron Co. [L.]	5 0 0	1⅛	1
5	Mold Argoed Colliery Co. [L.]	5 0 0	3	2¼
10	Monkland Iron and Coal Co. [L.]	10 0 0	9	8½
4	Mwyndy Iron Ore [L.]	3 15 0	2¼	2
100	Nant-y-Glo and Blaina (8 p.c. pref.)	100 0 0	18	20
3	Nerbudda Coal and Iron [L. & Red.]	2 0 0	1	1¼
20	New Sharlston Collieries [L.] Pref.	20 0 0	17	18
10	Newport Abercarn Coal Co. [L.]	10 0 0	4	4¼
10	Northmptn. Coal, Iron & Wagon [L.]	8 0 0		—
10	Northfield Iron Co. [L.]	8 10 0	¾	7¼
1	Norton Green Coal Co. [L.]	1 0 0		—
25	Palmer's Shipbuilding and Iron [L.]	25 0 0	14	13
100	Parkgate Iron Co. [L.]	65 0 0	21	19
20	Patent Nut and Bolt Co. [L.]	14 0 0	6	6½
20	Patent Shaft and Axletree [L.]	10 0 0	1	¾
20	Pelsall Coal and Iron [L.]	17 10 0	14	13
50	Phœnix Bessemer Co. [L.]	40 0 0		—
50	Rhymney Iron Co. [L.]	50 0 0	16¼	17½
10	Sandwell Park Colliery Co. [L.]	10 0 0	13	14
10	Ditto New	5 0 0	4	4¼
100	Shotts Iron Co. [L.]	100 0 0	86	88
100	Sheepbridge Iron and Coal [L.]	55 0 0	31	30
50	Silkstone & Dodworth Cl. & Iron [L.]	33 0 0	28	27
20	Skerne Ironworks [L.]	20 0 0	16¼	16
50	Somorrostro Iron Co. [L.]	50 0 0		—
25	South Wales Coal Co. [L.]	21 0 0	6¼	7⅛
100	Staveley Iron and Coal Co. [L.]	60 0 0	3	4
100	Ditto ditto New	10 0 0	1	1⅛
10	Swansea Valley Steam Coll. Co. [L.]	6 0 0		
100	Thames Iron Company	100 0 0		—
50	Tredegar Iron and Coal Co. [L.]	20 0 0	11	10
25	Ditto B. shares	25 0 0	18	20
20	Ulverston Mining Co. [L.]	12 0 0	5	3
10	Vancouver Coal [L.]	6 0 0	3⅛	2¼
100	Vickers, Sons, & Co. [L.]	100 0 0	10	12
50	Welsh Ironworks Co. [L.]	50 0 0		
25	W. Cumberland I. and Steel [L.]	20 0 0	12	11¼
10	West Mostyn Coal [L.] (12 p.c. pref.)	5 0 0		—
5	West Swansea Colliery Co. [L.]	5 0 0		—
10	Whitehaven Iron Co. [L.]	10 0 0		—
100	Wigan and Whiston Coal Co. [L.]	70 0 0		—
100	Wigan Coal and Iron Co. [L.]	75 0 0		—

WAGON COMPANIES.

Shares	Company	Paid	Price	
10	Birmingham Wagon Co. [L.]	10 0 0	14¼	15
10	Ditto, 2nd issue	4 0 0	1¾	2
10	Ditto, pref., 6 per cent.	10 0 0	11¼	11¾
20	British Wagon Co. [L.]	10 0 0	1⅛	1⅛
10	Gloucester [L.]	10 0 0	6¾	7
10	Ditto, 5th issue	5 0 0	1⅛	1¼
10	Met. Rail. Car. and Wagon Co. [L.]	5 0 0	1⅛	2
5	Ditto, pref., 6 per cent.	2 0 0	¼	⅜
10	Midland	10 0 0	par	¼
20	North Central Wagon Co.	20 0 0	20	21
5	Rail. Car. [L.] (Oldbury)	5 0 0	1	¼
5	Ditto, pref., 6 per cent.	5 0 0	⅛	¼
20	Sheffield Wagon Co. [L.]	15 0 0	1½	2
10	Yorkshire Wagon Co. [L.]	10 0 0	3¾	4

TELEGRAPH COMPANIES.

Shares	Company	Paid	Price	
"St."	Anglo-American	100 0 0	56¼	57½
10	Brazilian Submarine	10 0 0	6¼	6¾
20	Direct United States Cable	20 0 0	11⅛	11⅝
10	Eastern	10 0 0	7	7¼
10	East. Exten., Australia and China	10 0 0	6⅞	7⅛
10	Great Northern	10 0 0	7¾	8
25	Indo-European	25 0 0	19	20
10	Mediterranean Extension	10 0 0	2½	3
8	Reuters	8 0 0	8¾	11
Stk.	Submarine	100 0 0	215	220
10	West India and Panama	10 0 0	1⅞	2⅛
20	Western and Brazilian	20 0 0	2¼	2¾
$1000	Western Union, 7 per cent. Mort. Bonds	$1000	114	118

MISCELLANEOUS.

Shares	Company	Paid	Price	
Stk.	Atlantic and Great Western Leased Lines, Rental Trust	100 0 0	38	42
25	Australian Agricultural	21 10 0	78	80
25	Austral. Mort. Land and Finance [L.]	5 0 0	4¾	5¼
10	Avonside Engine [L.]	7 0 0	7	8
Stk.	Baltimore and Ohio, 6 per cent.	100 0 0	105	107
10	Brighton Aquarium [L.]	10 0 0	6¼	7¼
Stk.	Cent. of New Jersey Con. Mort.	100 0 0	70	75
Stk.	Cent. Pacific of Calif., 1st Mort. 6 p.c.	100 0 0	107½	108½
25	City of London Real Property [L.]	12 0 0	1½	2
5	Diamond Rock Boring	4 10 0	3⅜	3¾
15	English and Foreign Credit	8 0 0		—
16	Fore Street Warehouse [L.]	14 0 0	7½	8½
15	Foster, Porter, and Co. [L.]	10 10 0	18½	19½
5	Gen. Phos. & Chem. Works Co. [L.]	5 0 0		—
1	Greenhill [L.]	1 0 0		—
5	Kit Hill Tunnel [L.]	1 0 0		—
17	Hudson's Bay Company	17 0 0	10⅜	10⅞
10	Huntington Copper and Sul. Co.	9 0 0		—
Stk.	Illinois Central, $100 shares	100 0 0	79	81
Stk.	Illinois & St. Louis Bridge, 1st Mort.	100 0 0	74	77
Stk.	Ditto, 2nd Mort., 7 per cent.	100 0 0	33	38
Stk.	Illinois Cent. Sinking Fund, 5 p. cent.	100 0 0	99	101
Stk.	Ditto, 6 per cent.	100 0 0	107	109
7½	Imperial Credit [L.]	7 10 0	7⅜	7⅞
—	Ditto, Surplus Certificate	—	5⅞	6⅛
Stk.	Lehigh Val. Con. Mort., A, 6 p. cent.	100 0 0	99	101
10	Milner's Safe [L.]	10 0 0	8¼	9¼
25	National Discount [L.]	5 0 0	8¼	8¾
Stk.	N. Cent. Rail. Con. Mort., 6 per cent.	100 0 0	84	86
10	Pawson and Co. [L.]	8 0 0	¾	1
50	Peninsular and Oriental Steam	50 0 0	37	39
Stk.	Pennsyl. Gen. Mort. 6 p. cent., 1880.	100 0 0	109	111
Stk.	Ditto, Con. Sink. Fund, 6 p. ct., 1905	100 0 0	98½	99½
Stk.	Scottish Aust. Investment Company.	100 0 0	175	180
Stk.	Ditto, 6 per cent. Preference	100 0 0	123	126
10	Silber Light (ord. sh.)	10 0 0		—
20	Suez Canal shares	20 0 0		—
12	Telegraph Construc. & Mainte. [L.]	12 0 0	29	30
5	Ditto, Second Bonus Three per Cents	5 0 0	2⅛	2⅝
10	Tharsis Sulphur and Copper Co.	10 0 0	20	21
Stk.	Union Pacific Land Grant, 1st Mort.	100 0 0	105	101
Stk.	Union Pacific Railway, 1st Mort.	100 0 0	107	109
5	West of England Compressed Peat	5 0 0		—
5	Ditto	2 0 0		—

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